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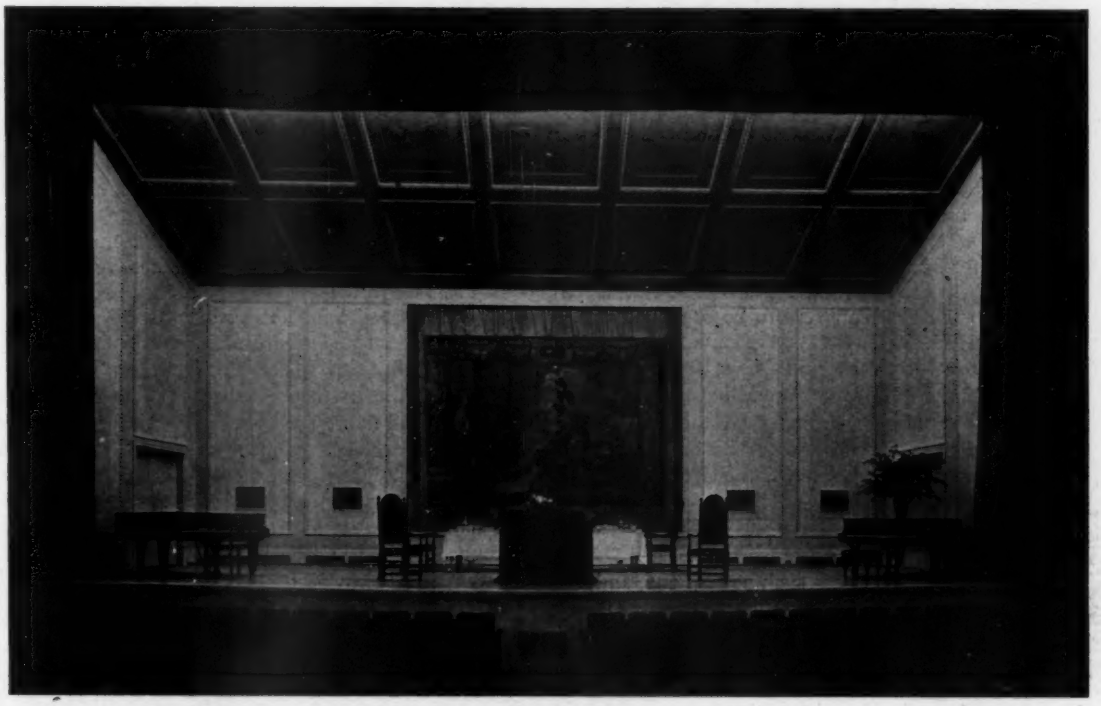

PLATFORM
THE TOWN HALL, NEW YORK CITY
McKIM, MEAD & WHITE, *ARCHITECTS*

What Is the Industry Going to Do About It?

Pertinent Proceedings and Impressions of the New York District Conference of the Building and Construction Industry, Held in New York City, January 25, 1921

You who transform the trees of the forest into lumber for the building of homes; you, the workers in clay and the quarriers of stone; you, who mine, convert and work the metals used in construction; you, who buy and sell the products of the quarry, the pit, the mine, the forest, or manufacture them for sale in useful forms; you, who employ these products, as the artist uses his colors and brush, as the mediums for permanent concrete expression of your genius in design; you, who by the work of your hands or your skill in executive management, assemble and fabricate these products into buildings; and you, who control the flow of industry's life blood—capital and credit; all of you who, functioning together, constitute the building and construction industry are called to take hold of your industry, lift it off the flat of its back and stand it on its feet that it may again go forward with increasing vigor in the service by which it lives and the community prospers.

—From the Program of Action.

AND you, having just read this declaration of purpose, are probably recalling, with a cynical sort of smile, similar phraseology in several such declarations which heralded other meetings of this nature in the immediate past and which have already sunk into an oblivion as complete and dis-

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couragingly thorough as that oblivion which today surrounds the details of Aztec civilization in Mexico.

But there is the exception to all things, and this, in the overworked program of that much abused "co-operation" which we are all only too anxious to secure, will very probably prove itself a notable exception. There will be no need for the cynical smile.

For this movement has already achieved both momentum and at least the beginnings of national importance. From August 6, 1920, when the idea of bringing *all* the elements of the building and construction into a common meeting was actually made concrete in the Atlantic City conference, there has been the gradual growth of momentum. It has taken root in Boston, New York, Pittsburgh, Chicago and St. Louis, where groups, representative of the whole local industry, are either organized or organizing to discuss industry problems and group policies as a preliminary to the first congress to be convened in the Spring of 1921.

The district conference in New York City was one of several which have already been held for the purpose of sounding sentiment on the matter and gathering whatever preliminary data on the subject may be now gotten together for the Spring congress of 1921.

THE BANKER'S ATTITUDE

The need for a congress such as this one, and for local district councils, was emphasized by all the speakers, but the fundamental and really significant need was best pointed out, not so much by what was actually said by two of the speakers as by a most important fact developed as the result of their addresses.

One of those addresses was made by Clarence Kelsey, first vice-president of the Title Guaranty & Trust Company of New York. It was, to our way of thinking, the most important address of the day, primarily because it came from a man in as important a financial position as Mr. Kelsey, and secondarily because it indicated the bankers' attitude on building construction in the highly important matter of credit. This is the first time, we believe, that the financial element (and we take Mr. Kelsey as representing a goodly portion of that element) has spoken so directly on a topic which has unfortunately been subjected to a silence second only to that of the Sphinx.

"There are three main factors in any construction undertaking," Mr. Kelsey began, "capital, material and labor, and an owner who has or will borrow the capital, invest it in the material and labor and look to the result for profit.

"Capital is the fundamental requisite. Without it, the next steps cannot be taken, but the procuring of capital is only the first step and accomplishes nothing if the next two cannot be taken.

"The second will not be taken no matter what the prices for material and labor unless the third step is covered in the promise of a reward to the owner.

"In the State of New York, the rent profiteering laws have so far as housing is concerned practically blocked the way for production or encouragement in taking the third step. Those are temporary and will soon, I believe, either be repealed or disregarded, and at any rate, in a little more than a year, will have expired.

"The factors, therefore, for a great construction movement are a supply of capital and a supply of willing and faithful workmen and reasonable costs of material.

"There is no great difficulty in the matter of capital—not nearly as much as is generally supposed —at any rate so far as mortgage money is concerned. It is true that the income surtaxes have driven the large individual and estate mortgage lenders out of the market, but their place is being taken, in a measure, by small ones through the activities of the title insurance and mortgage companies, by their methods of cutting up the large mortgages into small pieces represented by certificates, sold to small investors. The institutions also are coming back into the market to some extent and making loans on their own account.

"With regard to the balance of the capital required to carry the equity, there is, I believe, greater difficulty, and that difficulty is involved to a considerable extent in the costs of labor and material. As long as these costs remain so high, it is evident that the builder or owner has to have a much larger amount of capital of his own than was formerly necessary, but neither the mortgage lender nor the owner is eager to proceed until the costs of labor and material come down. This, I believe, is the crucial point to be covered if we are considering a great construction development. It will not take place on the current scale of material costs or of labor cost and inefficiency.

"The recent exposures of the way material costs are kept up are very disheartening and it is a bold man who will proceed with an extensive building program until assured that these combinations are absolutely abandoned and that real competition in price can be secured. Neither will there be a great building movement until labor comes to its senses. I do not mean by this, necessarily, a great cut in wages, but I do mean a great change in what the laborer gives for his wages. I cannot understand that labor can be so blind as to believe that business can go on with ever increasing wages to labor and ever decreasing performance by labor.

"I have not much hope of a satisfactory change

in this respect until the fundamental principles of labor unions are reformed. The individual laborer is standing in his own light and dwarfing his future by consenting to them. How can the ambitious, industrious and thrifty mechanic expect to get ahead unless he is rewarded for his skill and efficiency? Until the labor unions permit classified lists, with graded pay or piece work or some other method by which the skilful can do better than the unskilful and lazy, labor is bound to be inefficient.

"The result of the present policy we see all about us. The more the employer pays to labor in dollars, the less he gets in service. We all know that this cannot last, that it is dishonest, and that nobody suffers from the failure so much as the employee. The whole thing travels in a circle and comes back to the laborer in the rent that he pays, in the price that he pays for everything that he buys.

"In my judgment, it is in the hands of the material men and the labor unions to correct the whole vicious situation which confronts us today and to start a construction program that shall give work and prosperity to all. Decreasing continually the brick that a mason can lay, or the plastering that a plasterer can put on, or the lath that one can affix, the more his wages go up, means but one thing—just what we see all about us.

"The problems stated in the program of this association that are crucial to its purposes are plainly stated and can be easily solved if there is the real and sincere will to do it.

ORGAN DETAIL
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VIEW FROM LOWER FLOOR
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"The first is, how can an adequate supply of skilled craftsmen be provided? The answer is by giving the skilled craftsman a chance to do better than the veriest slob at his trade.

"How shall the proper functions of the respective elements be defined? By each one putting an honest price on his wares or on his labor and honestly competing to get a job by fixing his price right and making his services efficient.

REASONABLE AND ABUNDANT CREDIT

"How can abundant credit resources be made available at a reasonable cost? By presenting for security to the mortgage lender a property built with honest labor, and material honestly priced, and so far as the bank credits to the builder are concerned, by convincing the banks that the job is one honestly conducted and that the owner's money is not to be wasted on material bought under the conditions of dishonest and unlawful combinations in price, and with labor honestly endeavoring to earn the money that is paid to it. The

banks will not lend to builders or material-men if present conditions continue and they see that so much money is wasted on the job that it never can pay. They do not wish to lend to an owner whose undertaking is bound to be a failure because he is robbed in the construction of his building."

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Mr. Kelsey was subjected to an unusual amount of cross-questioning after his address. This came from not only some of the labor leaders present, but from others as well. On practically every matter affecting labor about which he had anything to say [notably the statement that certain mechanics were limited to a fixed daily production by the unions or some other element] he prefixed his answers by the words, "I am informed," or "I believe."

These words were taken by Hugh Frayne, general organizer of the American Federation of Labor, in charge of the New York office, and formerly a member of the War Industries Board, as the keynote of his address.

"The best argument put forward here for a congress such as this one," Mr. Frayne emphasized at the very beginning of his remarks, "was Mr. Kelsey's speech."

There was a noticeable gasp at this statement.

"His ignorance of labor conditions," Mr. Frayne continued, "emphasizes the need for just such a gathering and just such a congress as this gathering proposes. He tells you that he is informed of the existence of certain conditions. Now, we are all informed of almost everything, but there are degrees of being informed.

"He tells you that he 'understands there exists' or is 'informed' of certain malpractices, among which is the arbitrary reduction of individual daily production by certain agencies, just what he does not know. Let me say that in my long experience with both employers and employee, with the man who hires and the man who is hired, I have never known of any organization going on record, or of any law intended to limit the amount of work any individual may do in a day or week or month. No one is more opposed to the man who isn't willing to give service than I, but I do not believe it fair to charge labor as a whole with inefficiency because of isolated cases. I admit that such cases exist, but they are comparatively insignificant in numbers.

"I don't say that we have all the good people in labor, but I do deny that we have all the bad ones. I speak as a mechanic, who has worked with his hands and has had experience in handling men on many construction jobs. I know the elements that enter into individual production, or group production. Various factors, such as weather, enter into the problem of production; and no one can arbitrarily set a daily standard for production, because no one is powerful enough to remove the factors which naturally increase or decrease such production from day to day."

Speaking of the so-called "war record" of labor, Mr. Frayne said:

"We have heard all sorts of talk about the inefficiency and high pay of labor during the war, and it is most unfair talk. What happened at that time? The shipyards illustrate it vividly. The Government

and private corporations were forced to get men and get them quickly, and as a result they took them wherever they could find them. A young fellow, accustomed, let us say, to stenography, went into the shipyards to work. His reaction to his surroundings —the noise, the dirt, and even those with whom he worked—was psychologically horrible, and as a result, that young fellow could *not possibly* produce efficiently. He wasn't trained, he wasn't accustomed to the work, and he didn't like it. He could be nothing but an inefficient worker.

"There were thousands like him. Their combined efforts produced astounding inefficiency. And who suffered most?

"The trained worker, of course. He was used to the work, knew his trade, and liked it, and he was *producing*. But he was arbitrarily dumped into a general rating-pot, with the newcomers [necessarily inefficient] and his efficiency rating was based on the *total* man power, instead of the *trained* man power."

Mr. Frayne then discussed the moral responsibility of employers toward the men they hire, and emphasized the fact that in all discussions and all the

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talk about labor the human element has been completely lost sight of. He maintained that it was the duty of the employer, when he hired a man to work for him, to see to it that that man was either trained when hired or was trained after being hired.

"What's wrong?" he asked. "Is labor getting too much pay? Is production low? Is labor failing to do its full duty?

"Wages are not too high. The price of almost every commodity went up before wages, and that

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increase had to be, and was met by increased wages. We are not going back to pre-war standards.

"We are part of an industry upon whose well-being the livelihood of millions of workers depends, and we are looking here for some remedy to an appalling situation.

BETTER SYSTEM OF TRAINING NEEDED

"The remedy is simple enough. Keep in mind always the human equation. There you have it. More specifically, see to it that a better system of training for the workers of the industry is brought about. Pick trained men when you hire them, or train them. I am for this conference, heart and soul as many architects and engineers here can tell you. I have always believed in agreements between employer and employee. I have sat down and talked things over with some of the men in this room, and they were all employers of labor. I have found that when they knew our side of the case, from first hand, when they had facts, and not gossip, at their command, they always treated us fairly.

"I am satisfied that this is a great step forward, for it brings all the elements of the industry together. And *all* the elements have never before been brought together. Mark that statement.

"This is a big thing, and I am for it, personally and officially, and I can assure you that co-operation of the sort intended here will do more to clear the situation and put the building industry back on its feet than any other factor.

"Let me add this. There are thousands upon thousands of trained and skilled craftsmen and workers in the building industry, and *they* can find work. If you employers in New York co-operate with them, they will work for you and work well for you. But if you don't co-operate, if you don't show some intention of laying your cards on the table, they'll go elsewhere to work. And there is work to be had elsewhere, gentlemen.

"As for labor, I want to say right here that we will lay our cards on the table, face up and in full view of whoever may wish to look at them. I promise you that."

These two addresses sum up the spirit and essence and possibilities of this conference better than anything else that was said, because they come authoritatively from two of the most vital factors in any building program, and because they represent the official attitude of those factors.

MR. KOHN OPENS THE DISCUSSION

The morning session of the conference was given over to five addresses, two of which were of undoubted importance to architects. One was Mr. Frayne's, the other that of Robert D. Kohn. Mr. Kohn took no pains whatsoever to spare the feelings of other architects present, and his remarks, at the opening of the session, were made doubly important in view of his personal and particular importance in this movement and in the profession of architecture.

"I am ashamed of the industry of which I am a part," he said, "I am ashamed of what I myself may have done in that industry. I know nothing about this great industry as a whole. I don't know why materials fluctuate as they do, why men come into the building industry and leave it, how many do so, what controls material prices, and why there isn't any money to be had for the second greatest industry in America.

"I recognize as one of the fundamental difficulties that there is a shortage of skilled labor, due, as I see it, to competitive bidding between employers for that labor. This was especially true during the war period. . . .

"The problems before us are reduceable to one, and that problem is how best to get at facts and secure co-operation. I confess that architects have been of the 'stand-offish' sort for too long a period, but they have come to the point today where they realize that they are an integral part of the industry. . . .

"We are not here to argue over matters, or to discuss the open shop or any other factors having to do with that phase of the labor situation. We don't care about the open shop, and we don't want to hear about it. We do want to conduct a scientific investigation into five things, as I see it. One is the supply of labor. The second has to do with those reasons which impel men to come into this industry and work in it, whether they be architects, craftsmen or bricklayers. The motive may be simple enough, but what authoritative data have we regarding the labor turnover in the building industry, and all such factors? We want to find out just how important the architect is or should be in this great industry, and why he is *actually* that important. We want to find out about materials. And we shall hear something today about finance.

"The second largest industry in the United States is helpless today, because there is a lack of co-operation. That is a ridiculous situation. An industry in which at least 15,000,000, perhaps 20,000,000 people are engaged, finds itself on its back, unable to get up and stand on its feet. Due to finance? Well, it seems to me that the millions engaged in this industry can create their own credits, quite independent of banks and trust companies. That may be far fetched, and probably is, but it points a solution.

"We are here to determine the need for a national movement, for a local group, and the field of activities."

W. G. Luce, of Hegeman-Harris Company, representing the contractors, then emphasized what Mr. Kohn had said regarding co-operation, pointing out that at a dinner in Philadelphia, similar in purpose to this conference, the Executive Committee of the American Federation of Labor had this to say regarding the movement and the Congress idea:

"The architect has been way up in the sky for a long time, and we never felt that we could get to him. If he comes into this thing, as he has here and will do so in other places, we will be just fifteen years ahead of the game, because the presence of the architect at gatherings like these indicates a genuine desire to get down to brass tacks and do something."

Mr. Luce referred to a conversation he had with one of the associate editors of this journal on the previous day, in which the editor told him that the housing problem had reached the point of a national crisis (strikingly similar to the war) and that co-operation such as the war brought forth among every industrial element of the nation should now show its hand on the same basis.

"I thought that over last night," Mr. Luce said,

"and that fellow was right. This *is* a national crisis, and we need co-operation of the sort we showed during the war."

TEN CONCRETE THINGS TO BE DONE

The afternoon session was given to several addresses and a great deal of discussion, but the most important and vital of them all, from the standpoint of the architect (in that it provided ten more or less concrete things which the local councils and national congress may actually get under way immediately) was the short address by Louis K. Comstock, of L. K. Comstock & Company, which presented the point of view of the sub-contractor in the situation.

"Business men today don't know where they stand under the law," Mr. Comstock stated emphatically. "There is no machinery for finding out in advance if you're going to violate the law or not. We need that, to begin with, and this local group can contribute its share of such information to the national body.

"We need a code of practice. Not a Hettrick code, but a code based on the old English Law of Merchant. We need a machinery to enforce that code. . . .

"We need a great many things, but here are ten which I believe we can get at in this national congress this spring; and these things are justification enough for this and similar meetings which have taken place or will take place in other cities.

"The Congress can:

1. Improve the facilities of the building industry;
2. Standardize documents and laws affecting the building industry;
3. Secure harmony of action on questions affecting materials, finance, and credits;
4. Safeguard the building industry against waste and fraud;
5. Increase total production in the building industry by elimination of waste effort;
6. Work for trade regulations and legislative increases which will facilitate and encourage the development of the economic side of the building industry.
7. Centralize data concerning the technical and economic features of the building industry;
8. Inform and create public opinion, through publication of facts regarding conditions in the building industry and through the dissemination of views of technical experts and business men;
9. Cultivate personal acquaintanceship among builders, architects, engineers, and contractors in order to lessen group and sectional prejudices and misunderstandings;
10. Promote peaceful progress, cordial relationships and co-operation among individuals of the industry.

"These are the things," Mr. Comstock concluded, "that we can investigate now; these are some of the things that demand correlation of facts; and these are the sorts of problems which this congress will be fully prepared to deal with *accurately* and *effectively* if local groups, such as this one, do their full share toward contributing their co-operation in the general scheme of action."

RESOLUTION ADOPTED

A resolution designed to give continuity to the conference and permanance to its work was introduced by H. C. Turner, and unanimously adopted. The resolution read as follows:

WHEREAS it is the conviction of this New York District Conference that a National Congress of the Building and Construction Industry, in which there will be represented every functional element of the industry, is the indispensable instrumentality for the needed co-ordination of the industry to the end that the industry may progressively raise the standard of quality and the extent of its services to the public; and

WHEREAS the National Congress, to be successful, must result from a local demand for it arising from an understanding of the constructive value of the contacts and frank discussion which are possible only locally; and

WHEREAS, the National Congress can be given continuity only by reason of continuous local contacts and discussion, be it

RESOLVED, That a permanent conference of the Building and Construction Industry in the New York District be created; and be it further

RESOLVED, That to the end that such a permanent conference be created, that an organizing committee be appointed consisting of two architects, two general contractors, two sub-contractors, two labor representatives, two manufacturers, two dealers, two financiers and two engineers, together with such others as will make the committee representative of every interest and element in the industry in the New York District to prepare a program providing for the creation of a permanent conference of the Building and Construction Industry in the New York District.

Further discussion of routine matters followed this introduction, after which adjournment was declared by the chairman, Mr. Kohn, until the organizing committee should be ready to report.

BIRTH AND DEVELOPMENT OF THE CONGRESS IDEA

Sullivan Jones, who acted as chairman of the morning session, and who is temporary secretary of the movement at present, explained the idea of the congress. Mr. Jones has been one of the most active members of the Executive Board of the Congress.

"To get at the facts," Mr. Jones explained, "to establish the basis for common action and understanding upon common interests, the idea of a permanent congress of the several elements in the industry was evolved at a conference in Atlantic City on August 6, 1920, which was attended by representative architects, contractors, sub-contractors, engineers, manufacturers of building materials and labor men. This conference appointed a Congress Organizing Committee, which met in Chicago on September 27th, and that committee declared the National Congress of the Building and Construction Industry created, to bring together in co-operation every element contributing towards or concerned in the building industry in a movement intended to promote the efficiency and improve the quality and extent of the service rendered for the public good by that industry. It was resolved that a thorough

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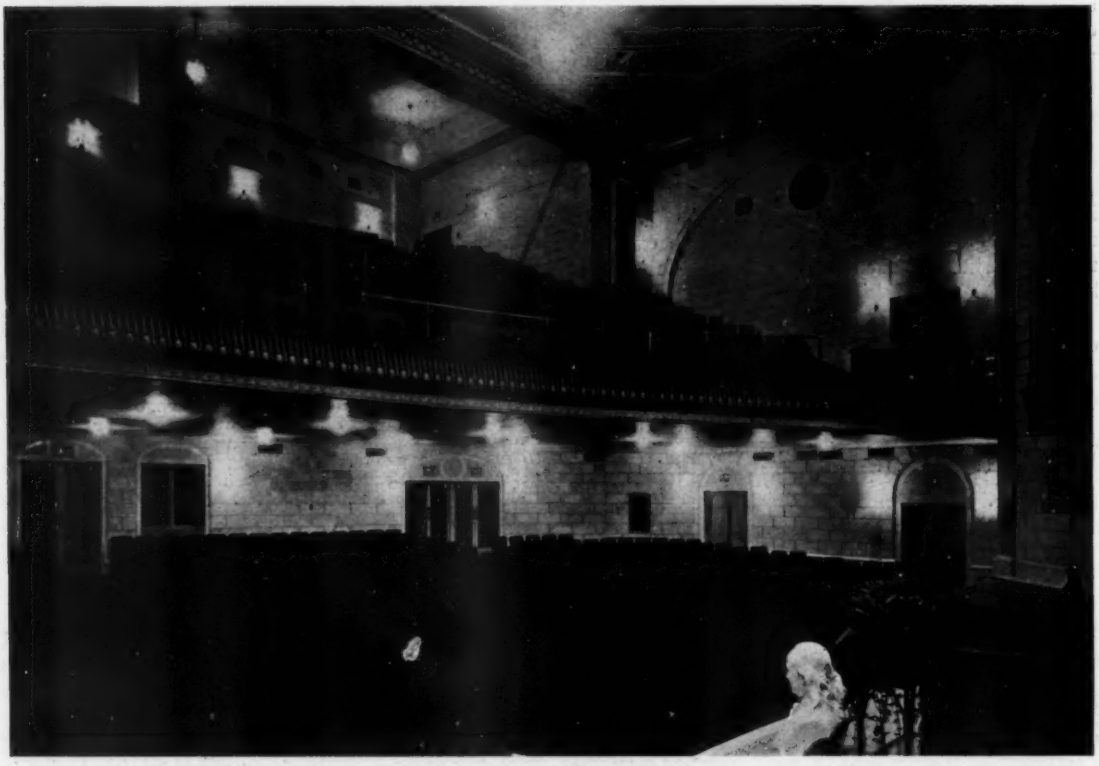
study be made of the relations of the various elements and industries which enter into building and construction activities, that a congress be convened as soon as practicable to consider the ways and means of eliminating the various factors which have retarded necessary building and construction, and that a building and construction congress be permanently established to give continuity to the national beneficial objects which gave it birth.

"The committee then appointed a Congress Executive Committee which met in Pittsburgh on October 29th and reorganized itself into an Executive Board of forty to be composed of five representatives from each of the following elements of the industry: general contractors, sub-contractors, architects, engineers, manufacturers and distributors of materials and equipment, labor and investment capital.

FUNCTION OF THE CONGRESS

"The purpose, as expressed by the Executive Board, is not to create another national organization. The congress should not be regarded as an organization, but as an institution. It is to be a deliberative body or forum without mandatory powers. For its own enlightenment it may, if it so decides, create and direct or employ research agencies. And to give its effort continuity it may set up executive machinery.



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"The driving power behind the movement is the fervent hope that the congress may become a brain for the building and construction industry; that it may become an instrument for securing facts, for thinking in terms of facts, and for planning the future course of the whole industry as a unified, frictionless, productive mechanism. But there is no thought that the congress should usurp or infringe the prerogatives of, or limit the autonomy of any existing organization."

Some of the men thus far identified with the movement are:

General Contractors—W. G. Luce, F. G. Webber, A. P. Greensfelder, Otto M. Eidlitz.

Sub-Contractors—L. K. Comstock, Oscar A. Reum, Frank W. Howard, Ronald Taylor.
Engineers—Morris Knowles, F. C. Shenehon, F. A. Burdett.
Architects—Robert D. Kohn, M. B. Medary, Jr., E. J. Russell, S. W. Jones.
Labor—T. R. Preece, James P. Noonan, John H. Donlin, George F. Hedrick.
Manufacturers—Wharton Clay, W. L. Hodskin, O. Spear.
Investment Bankers—Walter Stabler.

amount of projected work is released? In the future, how shall the industry escape the effects of both under-production and over-production?

How is an adequate supply of skilled craftsmen in the several trades to be provided and maintained?

How is genuinely co-operative effort by employers and wage earners (whether the wage earners are organized or unorganized) to be substituted for the

GENERAL VIEW OF INTERIOR
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The first congress is to be convened early in 1921. This first congress will be composed of fifteen delegates from each of the named elements of the industry.

SOME OF THE PROBLEMS DEMANDING CONSIDERATION

Among the problems which the first congress will probably consider, the Executive Committee mentions the following:

How is the industry to prepare itself to meet the demand for structural materials; a demand now potential, but which will become real when the vast antagonism which, in the past, has checked production?

How shall abundant credit resources be made available, at reasonable cost, to the industry in order that it may function in satisfying public need?

How shall the industry be led to adopt a uniform and equitable policy in bidding and with respect to contract terms and conditions?

How shall the industry be led to adopt a uniform of the respective elements of the industry be defined, and how shall performance be assured in order that maximum efficiency may be attained?

Quite a program!

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A Street in Newport

(See reproduction of original drawing by O. R. Eggers on opposite page)

There is nothing in the view of this quaint, winding street, so picturesquely shown by Mr. Eggers, to suggest that it is a close neighbor to a section renowned all over the world for its palatial residences and the homes of multi-millionaires.

The native population of Newport, with commendable regard for the traditions which surround this town, have kept as far as possible free from incursions of modernism. The artist in drawing this picture has presented a street in the old town of Newport as it probably looked a century ago.

One may almost with accuracy trace the successive stages of building. Undoubtedly the houses, with their gambreled gables facing on to the street, were the earliest types. In the distance rises the spire of Trinity Church, shown in an earlier illustration. There are many well designed historic buildings in Newport. The neighborhood has long been a favorite sketching ground.

The State House, illustrated in an earlier issue, and in which is hung the original portrait of Washington by Gilbert Stuart, the old market house, dating from 1763, the Redwood Library and the Jewish Synagogue are among those best known.

A STREET, NEWPORT, RHODE ISLAND
THE AMERICAN ARCHITECT Series of Early American Architecture

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EDITORIAL

American Architecture

IN this column the idea of regional and indigenous architecture has been discussed frequently. In a country which embraces such a diversity of climate, topography and structural materials as the United States, this is but a natural consequence and these regional types are being developed gradually. The ultimate center of population, culture and wealth will embrace a vast territory. The natural resources, topography and climate will not be so diversified but that a great regional and indigenous architecture will be evolved. By mere preponderance of numbers and extent this may become *the* American architecture and the other types become regional. Be this as it may, the entire subject is one for interesting speculation.

The attitude of the architectural schools will have a powerful influence and indications justify the opinion that the educators are now busily taking stock, to use a phrase from the article entitled "Westward Ho!" on another page, with the endeavor to place architectural education on the new basis that conditions demand. To aid them in this, the profession should lend its assistance and in doing so lay aside intolerance and prejudice, approaching the subject with an open mind.

THE AMERICAN ARCHITECT has maintained the idea that the practice of architecture is a business as well as an art and profession. In the new scheme for architectural education these two components must be recognized, each in its proper proportion. Shall these matters be adjusted as the result of demands or will they be established in leadership? There need be no ruthless tearing down of old idols and the institution of new gods, but rather a revaluation of the stock in hand which will naturally cause the development of new ideas and possibly an American architecture through the eternal force of evolution, quickened by the fast changing conditions of this day. Education of today influences the architecture of the morrow and we must unselfishly prepare for the architectural future in which we can have no participation except through the influence of our works of this day. The educational scheme of today must be predicated on the suppositional needs of the future and these can only be established by free, open and unbiased discussion. Professional thought cannot be directed toward a more worthy subject.

Ethics in Architectural Design

THAT men retain an architect to design their buildings is a confession that they themselves know little of architecture. That they engage interior decorators is further proof that art holds aloof from them shrouded in a haze of misunderstanding.

What is the mental process of the architect or the decorator when a client first consults him? Where does sincerity enter into his calculations in conforming to the wishes of the client?

Should an architect or a decorator express the client's individuality even if the result be artistically bad, or should he express his own properly developed sense of art though it may not represent the client. Shall he descend to a French rococo house for the prim spinster who has inherited a fortune but knows nothing of art, or may he build a pure Georgian for the artistically ignorant butcher. Shall he design an inferior house to represent an inferior person, or shall he make it possible for an artistically ignorant man to pose as a connoisseur by means of a few well learned phrases about the beauty with which an architect or a decorator may have surrounded him?

These questions sooner or later force themselves upon every architect.

The very fact that an architect is retained presupposes a certain amount of carte blanche for him. The chances are that if he is tactful he can prevail upon a client to modify his preconceptions. Hence the importance of his influence and the need for his having a point of view.

An architect is a professional man who by education and training has a certain public responsibility to bear. He must uphold the dignity and beauty of architecture, and through it the dignity and beauty

of human beings. He cannot assume that certain persons are inferior. It is up to him to do his part to keep them at the level of their best moments. A man's intercourse with an architect may be the one contact of a lifetime with art. If architects are to do their full duty to raise the standards of living, they can find ample opportunity in their intercourse with prospective clients, to teach them the whys and the wherefores of good architecture, and make it something to be respected and loved, and then logically followed. While to adapt the architecture to the type of owner is considerably simpler than to adapt the owner to the type of architecture, it is desirable to do this in cases where it seems possible to develop the owner. Instead of building down to the level of the inartistic butcher, give him the sort of house that he must live up to. If he is surrounded with certain refinements in his home, these will inevitably tell, for environment is more powerful than we suspect. By going into the elements of architectural design with a client, it is possible either to teach him, or to convince him that your experience and advice is the thing he has sought.

If the artistically ignorant man poses in his new home, the very fact that he acts the artist gradually tends to give him the artist point of view. One cannot pretend to appreciate a thing without soon really appreciating it.

It is, of course, fortunate when a client sincerely yearns for good architecture and is willing to defer to his architect for most of the details. But such clients are rare and hard to find. It is infinitely more to the credit of an architect to succeed when all the circumstances are trying and difficult; when the client is perverse, the money scarce, and all the rest. In the building of homes, architects do more to conserve and promote the happiness and well-being of communities than can be readily conceived. When they do it without co-operation, when they turn antagonism into harmony, when they raise vulgarity to refinement, then, indeed, have they done a great work.

Reducing Transportation Tangles

THERE is nothing which will further reduce the cost of building than effective transportation of materials. This statement is based upon the supposition of fixed prices for fixed periods, of course. There is nothing that will better speed the building program of this nation than efficient transportation.

It is therefore the important duty of every architect to be familiar with transportation. Architects, as a whole, realize this. And nothing is of more importance in this problem at the present moment than the Esch-Cummins law and its effects. It may be shown that it works injury, and that it was actuated by motives not entirely of a constructive nature, yet the fact remains that 1920 was the record railroad year for a nation whose railroads have most certainly been the "standard of the world" from the standpoint of efficiency. These achievements of the year were achievements in every sense of the word. In the nine full months (only nine months in which to recover from government control) since the Government turned back the railroads to their owners on March 1, the railroad companies under private operation have:

"1. Increased the average movement per freight car per day 6.3 miles—from 22.3 to 28.6 miles.

"2. Increased the average load per car 1.7 tons—from 28.3 to 30 tons.

"3. Made substantial reduction in the number of unserviceable locomotives.

"4. Reduced the accumulation of loaded but unmoved freight cars from 103,237 on March 1, to 21,991 on December 3, of which only 6,386 were detained because of the inability of the railroads to move them.

"5. Relocated approximately 180,000 box cars from the East to the West for the movement of farm produce.

"6. Relocated approximately 180,000 open top cars from the West to the East to keep up the production of coal.

"7. Moved the third highest coal production in the history of the country.

"8. Spent over $500,000,000 extra on improving the maintenance of tracks, bridges, cars and locomotives.

"9. Contracted to spend about $250,000,000, largely out of earnings for additions and betterments to promote the movement of cars.

"10. Made arrangements to purchase approximately 50,000 new freight cars, 1,500 new locomotives and 1,000 new passenger cars.

"11. Begun the reconstruction of thousands of old cars.

"12. Moved—with a deteriorated plant, under disturbed labor and business conditions—the largest volume of traffic ever known in a single year, with the highest efficiency yet achieved, and with a minimum addition to the value of the property on which the public has to pay a return through rates."

Such a record is one of which to be proud. It shows efficiency. It shows a splendid grasp of the railroad problem by the men whose business it is to keep those roads running. It indicates what can be done in 1921 if the brains of the railroad companies really get into the full swing of efficient reconstruction and recovery.

Westward-Ho!

FOOD and shelter are the two essentials for human existence. The first is universal; the latter varies with the latitude. The one concerns agriculturists, fisher-folk and stockmen; the other, architects. All shelter involves architecture whether it consists of caves or structures made of assembled parts; therefore, architecture is essential to human existence. Architecture, being the art of constructing buildings, varies with the latitude primarily and with the civilization of the people secondarily.

A civilization can be accurately gauged by its food and its architecture. Related indications are too numerous and varied for present discussion. The highest degree of civilization is that whose architecture has the correct relation between utility and beauty; the kind, preparations and manner of consuming its food is also a certain indication. The hut of the aborigines may contain all of the utilities that they require but in them we, at least, find no evidences of beauty or the conveniences of civilization. The richly decorated tent of the wandering Bedouin possesses beauty of color and texture but, like the aboriginal hut, lacks in comparative utility or conveniences. And so it goes, until we enter the XIX century when utility and beauty approach a parity. At the present time utility is probably in the lead due to the predominance of commercialized industry. To make a parity there must be an increase of beauty.

In *Harper's Magazine* for January, Mr. W. L. George makes this statement: "The civilization that the Middle West creates within the next fifty years will be the American civilization." The certainty of this prophecy can be demonstrated. The civilized world today is taking stock and everything therein is invoiced and the evaluation will be carefully considered. What, then, of architecture? Will it as one of the two essentials to human existence be in its rightfully dominant position with food or will it find collocation in parity with less essential things?

Architecture is either quick or dead. There can be no in-between existence. What, then, is that architecture which can be called "quick"? In taking stock, this must be determined, as "dead" commodities are not an asset. "Quick" architecture can only result from the efforts of a creative instinct. This instinct must be the underlying motif of architecture. It seems that the written words of that beloved Old Roman of Western Architects, Irving K. Pond, state the fundamental principle:

"Man has been struggling upward throughout the ages, struggling to attain the ideal. By this struggle, conscious as it has been, and with definite purpose, he is marked as of an order higher than the beasts, which struggle for existence impelled by habit and guided by instinct only. Habit is life in the beast's creation; but habit in man has been aptly denominated the soul's tomb. In reviewing the struggles and achievements of man it will become apparent that habit builds the tomb of art; that when the spirit no longer inspires, but forms are repeated from mere habit and for form's sake, art has ceased to live and architecture reared in her name is her tomb."

Habits of the right kind which control personal conduct are desirable and necessary and so is rational thinking. Can live architecture result from the habit of designing from the great volumes which illustrate the works of Good, Bad and Indifferent, or Brown, Black and White, copied largely from the old masters; or will it result from hard work actuated by a creative instinct? Is American architecture a dull habit or a live, potent actuality?

Good architecture will live through the ages only in its native environment. It cannot be transplanted to other lands, peoples and amid strange ideals, without depreciation. The same is true of Sumatra wrappers grown in Connecticut. The good architecture of the past should be acknowledged, appreciated and absorbed and it will be reincarnated only through the inspiration and culture it yields to a creative spirit.

In Washington and other cities there have been erected imposing structures consisting of correctly proportioned basement, colonnade and entablature, duplicates of those erected by the ancients for an entirely different purpose and relationship to the building itself. Was this designing the result of habit or a frank acknowledgment of inability to treat those great bulks of structures as wall surfaces enclosing a building? It was obviously the most easy thing to do.

Nearly three decades ago a great exposition was constructed on the shores of Lake Michigan and it had a pronounced influence on American architecture. The classic school was the one more in vogue, one example of Spanish and one which might be called American architecture. Recalling those days, the impression of the Corinthian water gate and peristyle and the agricultural building is that of a dead age, ruins, a tomb. Perhaps the old illustrated books of history and foreign travel which showed ruins consisting of a few standing columns with entablature and pediment in part connected with the impression of ruins with the peristyle.

The administration building, with its great dome designed in a French style, did not fit either to the classic Watergate and peristyle or the low extensive buildings adjacent. All these white buildings against

the cold blue lake give a sense of chill and departed glory.

But turn from the setting sun, standing on the bridge over the lagoon to face the great golden western door of Sullivan's Transportation building. One stood still and looked with sheer delight at the prospect. That great door with its marvelous arch so richly and delicately ornamented, so beautifully colored, was a living, vibrant, pulsating thing and alive. It stirred all the senses, reacting through those beautifully chaste and splendid Muses of poetry, painting and music. Face then the West and through the golden dusk of the Midway behold—

"Gamboge and gold; broad sunset colors strewed
The purple west as if, with God imbued,
Her mighty palette Nature there laid down."

Architecture, the quick and the dead!

Of that American civilization developed in the Middle West an American architecture will be a concomitant. A starting has been made, the influence of which is becoming more discernible as time passes and prejudices are broken down. The burden of its development does in truth seem to rest with the Mid-west universities and architects. They will be equal to the demand, imbued with the spirit of that great empire, the Valley of Democracy through which flows the Father of Waters.—A. L.

Are You a Trained Observer?

THERE is a world of difference between casual observation and systematic, purposeful observation. A careful scientific observer can learn more in a few months about a given subject than the average man learns in a lifetime about it. The difference lies mainly in two factors: (1) the relative concentration of attention, and (2) the analysis and comparison of data.

Mr. Ernest Coxhead, of San Francisco, has written on "Training the Architect by Direct Method." One of his most suggestive statements was this:

"The power to visualize architecture is not to be developed to any extent merely by seeing things, or by gaining fleeting impressions, but by observation, focused and concentrated upon the object in general, and in detail, by actual contact with the building and by means of measured drawings and sketches and notes, further impressing upon the mind the observations made. The essence of the direct method then lies in taking the student to architecture and confronting him with it in three dimensions, life-size, as opposed to the atelier method of focusing his attention upon mere documentary representation of the actual building. In the latter case his sense of scale is undeveloped, his ideas of proportion remain distorted, and, by laborious mental effort, he sometimes is able to construct in his mind from the documentary study of plan, elevation, and section what the subject of study, or something akin to it, is in the reality."

Mr. Coxhead is emphasizing the "direct method," or the "field work method," of training architects, with particular reference to developing a sense of proportion. We quote him, however, for another purpose, namely, to emphasize the value of "observation, focused and concentrated upon the subject."

When an engineer is asked to state his experience in a given field we are all prone to give undue weight to the number of years of his experience. Rarely do we undertake to measure the degree of his concentration of observation during those years. Yet without concentration of observation, mere personal presence among suitable surroundings adds little to any man's knowledge. During the last 200 years men have learned more about natural laws than during all the countless centuries before, not because modern man has a better brain than his ancestors, but because he has employed better methods of studying nature. In like manner a well trained young engineer may learn more in ten years than an ill trained engineer has learned in fifty.

More and more do educators realize that their main functions are, first, to arouse ambition, and, second, to instill lasting habits of carefully observing, reading and reasoning. It seems to us that engineering societies should also endeavor to strengthen such habits. To this end it will be wise to have classes in scientific observing, classes in systematic reading, classes in memorizing, and classes in logic. Call them classes in applied psychology, if you please, to differentiate them from classes whose main object it is to impart information rather than to develop mental habits.

It does not suffice to know what to do and how to do it. Men must be habituated by long practice, usually under mental trainers, to act in accordance with the principles to which they readily give lip service.

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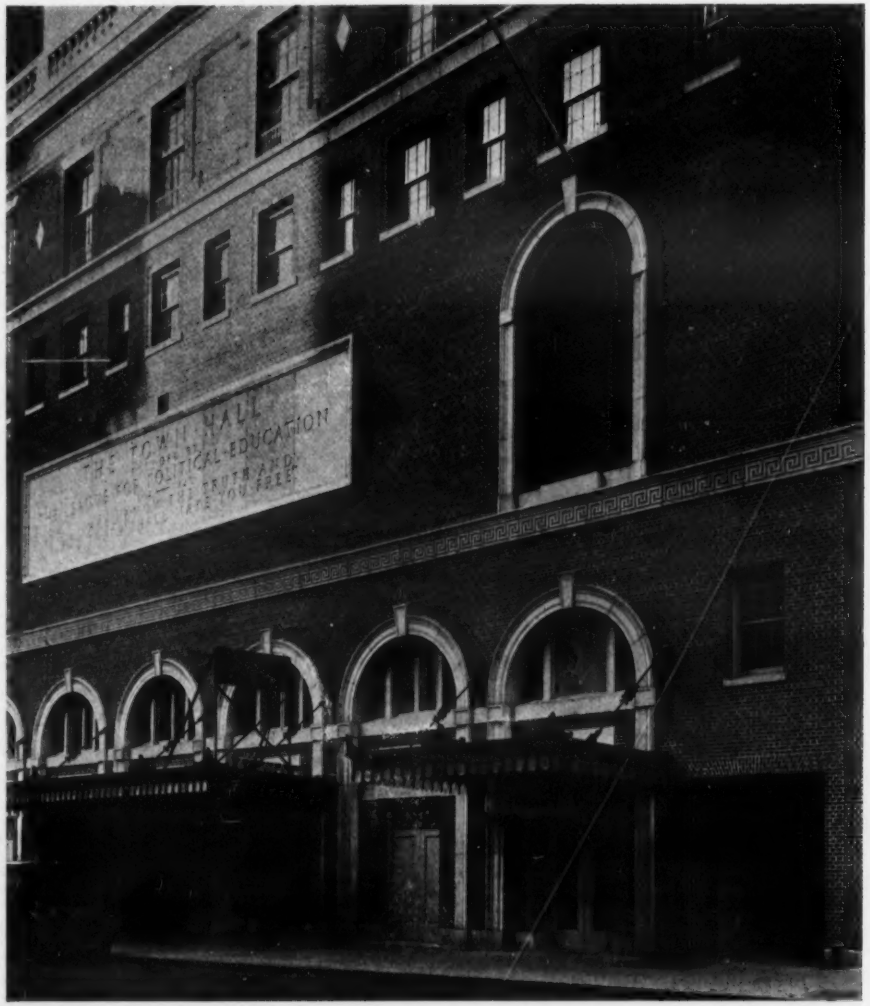
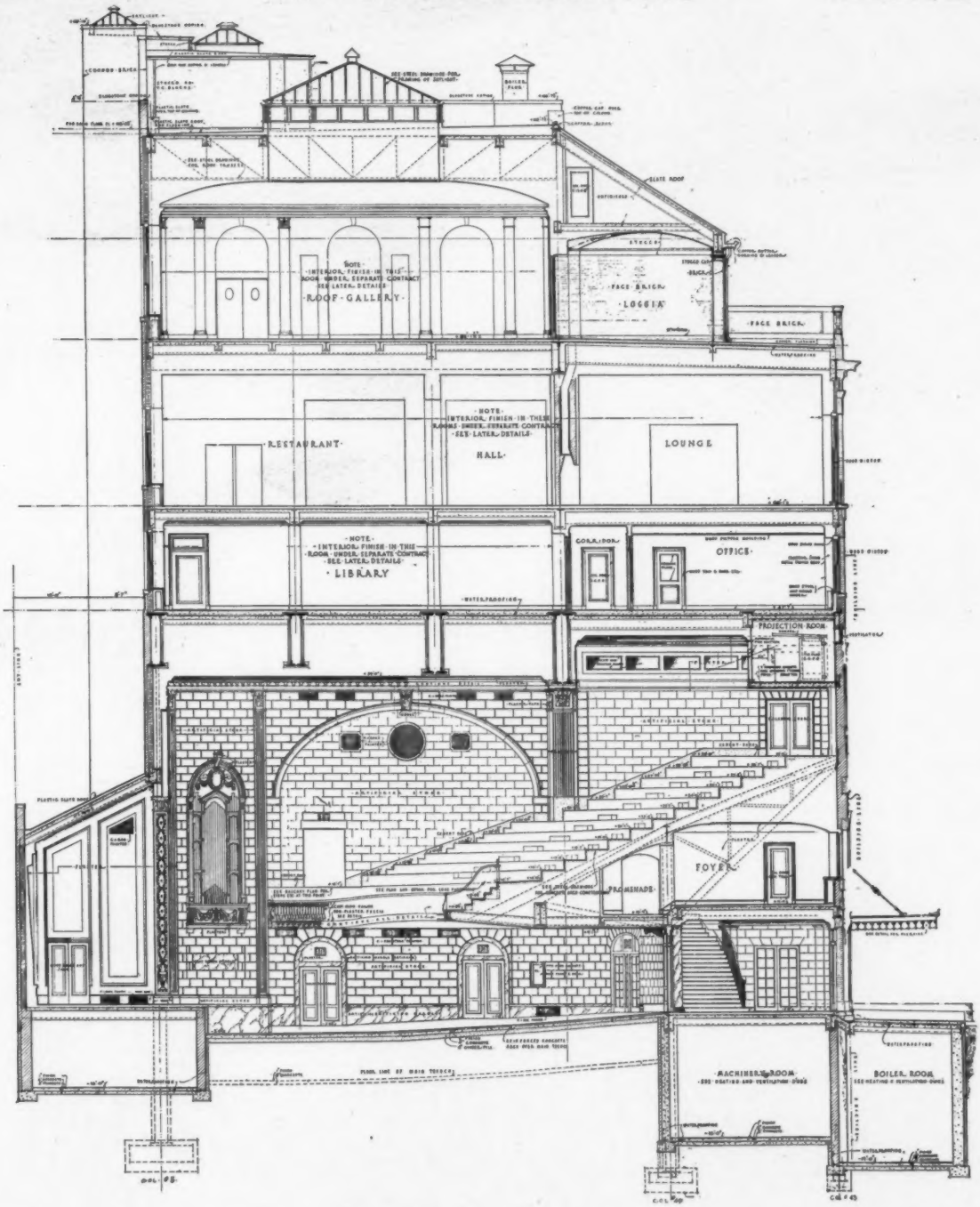


THE TOWN HALL, NEW YORK CITY
McKIM, MEAD & WHITE, *ARCHITECTS*

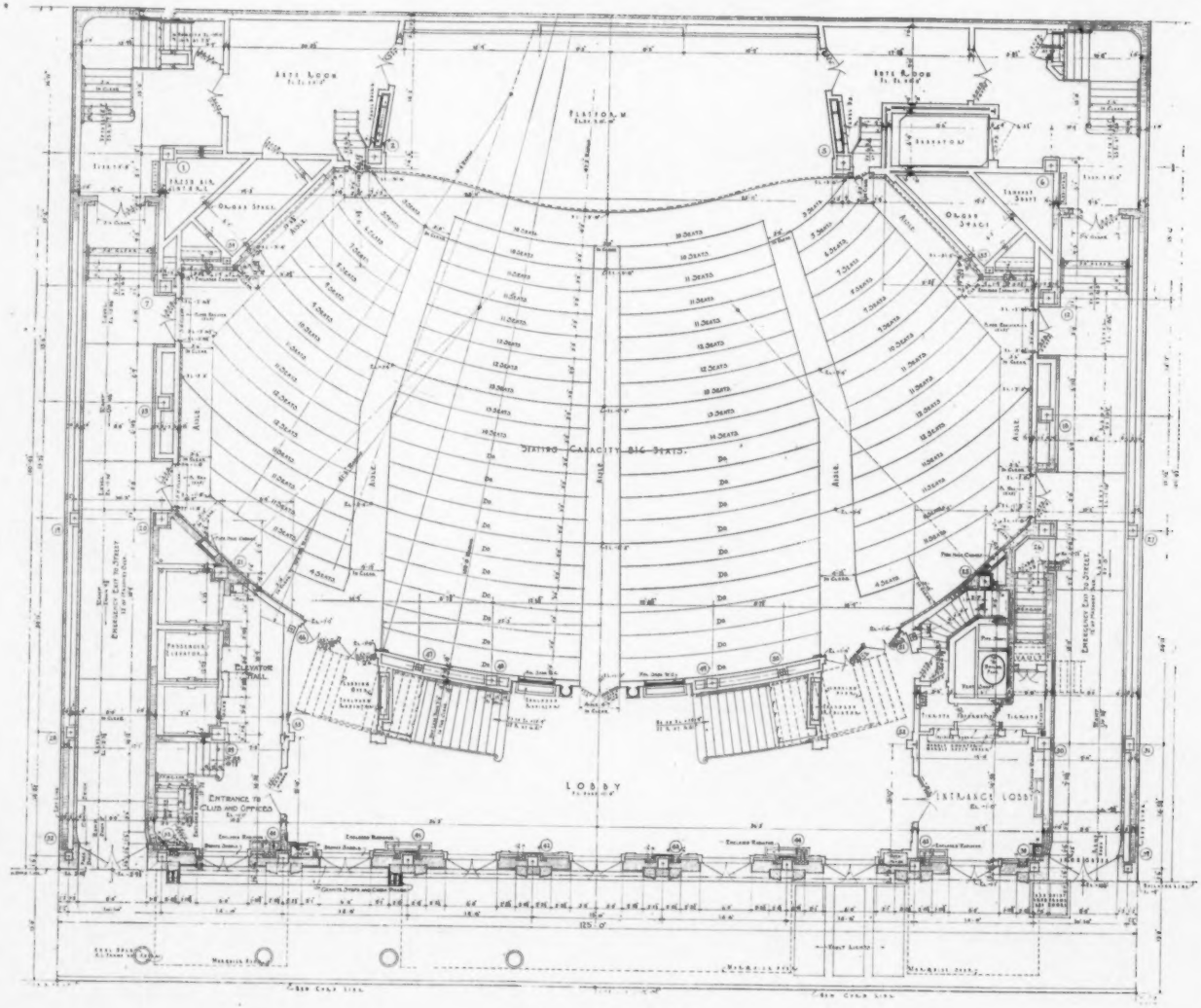
VIEW OF LOBBY

ENTRANCE TO AUDITORIUM

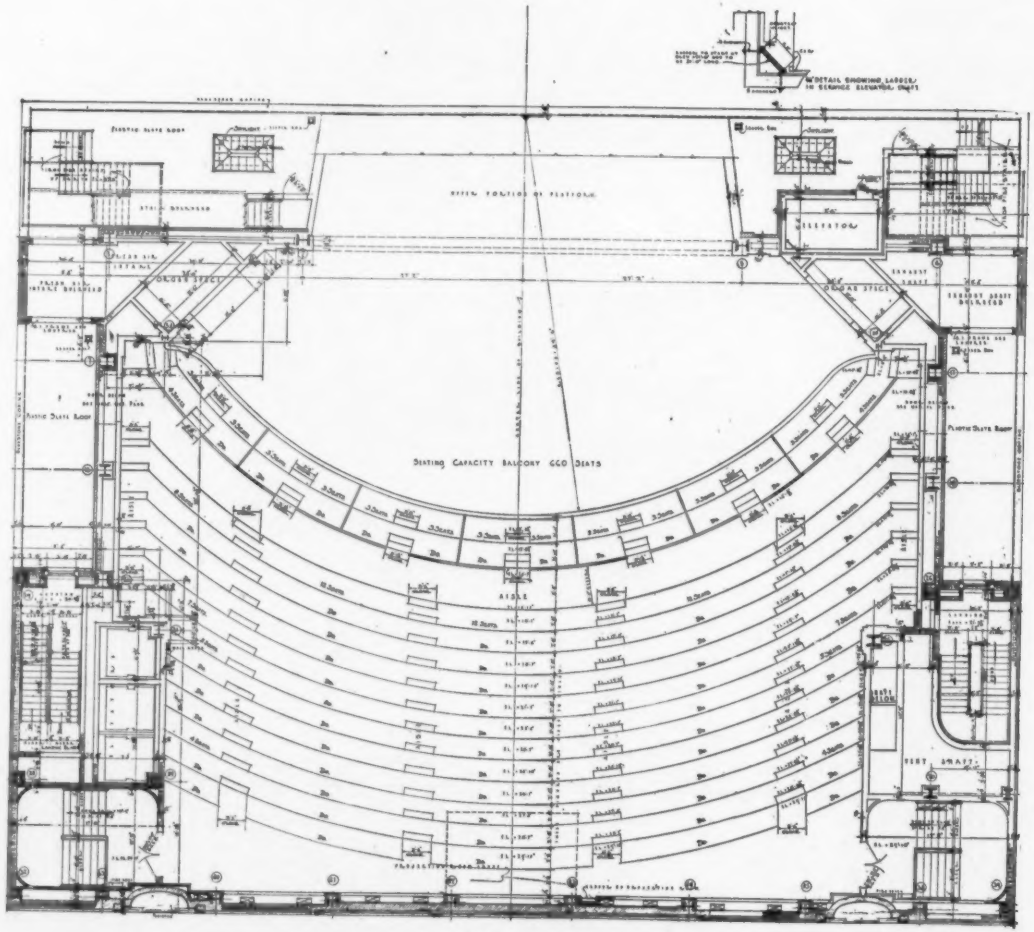


LONGITUDINAL SECTION
THE TOWN HALL, NEW YORK CITY
McKIM, MEAD & WHITE, *ARCHITECTS*

XUM



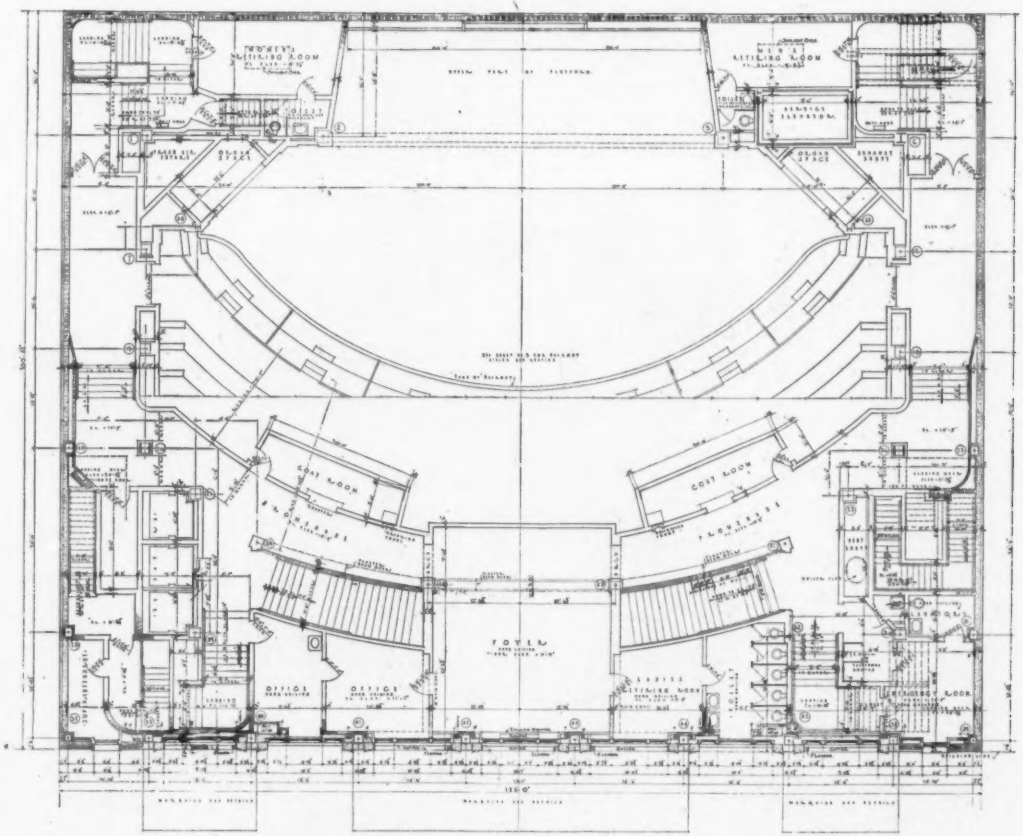
FIRST FLOOR PLAN
THE TOWN HALL, NEW YORK CITY
McKIM, MEAD & WHITE, *ARCHITECTS*



BALCONY PLAN

THE TOWN HALL, NEW YORK CITY

McKIM, MEAD & WHITE, *ARCHITECTS*



BALCONY MEZZANINE FLOOR PLAN
THE TOWN HALL, NEW YORK CITY
McKIM, MEAD & WHITE, *ARCHITECTS*

DEPARTMENT · OF · ARCHITECTVRAL · ENGINEERING

Good Design Increases Rental Values

Common-Sense Alterations Made an Old Loft Building Into Desirable Space and Brought Increased Rentals

IN all the big cities there are a large number of loft buildings that have gotten into such a state of disrepair that they are undesirable, are hard to fill and bring exceedingly low rentals. Such was the case with No. 45 Maiden Lane, New York City. The photograph shows just how it looked on the outside and is a good indication of the interior appearance as well. Before it was remodeled the outside fire escape shut off light, was unsightly, and it is even doubtful if it could have served the purpose for which it was intended if an emergency should have arisen.

The building was not attractive either outside or inside; it was even repulsive. There was difficulty in finding tenants and the rentals hardly paid for the maintenance and operating expense. These factors prompted the lessee to remodel the building along up-to-date lines.

EXTERIOR OF BUILDING AFTER REMODELING

Note the ventilating louvres at the left

THE AMERICAN ARCHITECT presents here, as an example of the best method of rehabilitating such a building, a description of the thorough alteration made at 45 Maiden Lane through the plans and supervision of the firm of Charles H. Higgins, Architects Engineers, for Adolphe Schwobe, Inc. Importers and Assemblers of Watches.

In discussing the development of this project, Mr. Higgins was emphatic in stating that the principal motive in the design of this plan was "fitness to accomplish the owner's purpose." The arrangement and character of parts, movement of materials and persons, protection from weather and fire compactness, orderliness, convenience, and proper working conditions for men and women, safety, light, heat, ventilation, sanitation, all make for accomplishment of this purpose. A home for business.

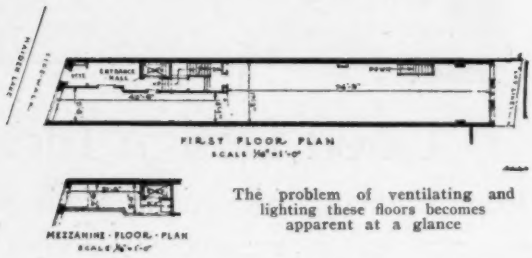
EXTERIOR OF OLD BUILDING AT NO. 45 MAIDEN LANE

As the second photograph indicates, the obscuring and unsightly outside fire escape was removed from the front of the building and was replaced by fireproof enclosed stairs within. It was then possible to give the front of the building a clean and neat appearance at a fairly nominal expense.

The interior alterations included an attractive entrance hall and mezzanine balcony that increased the floor space in addition to making the appearance more attractive. The walls and floors were refinished throughout the entire building.

From the floor plan it will be seen that the building is a long and narrow one, 17 ft. 3 in. x 124 ft. 3 in., to be exact. The difficulty of properly lighting, heating and ventilating such a building is at once apparent inasmuch as the side walls, 125 feet long, are solid walls and necessarily few windows or other openings. Even where windows were allowable, the light would be cut off by the adjacent buildings.

Part of the problem was solved by the method of indirect light. The fixtures were suspended from the ceiling and the light was reflected upon the white surface and then diffused through considerable area. The white walls and ceilings were necessary adjuncts to this method of lighting the interior. In order to get the proper intensity of light for the requirements on each floor, careful study was necessary to deter-



The problem of ventilating and lighting these floors becomes apparent at a glance

mine the size and number of lights, the spacing and the height from the floor. In this the architects were unusually successful. When this form of lighting is properly designed and installed, it is conceded to be more effective and less trying on the eyes than when direct lighting is employed. Such was the case here.

The question of proper ventilation was also solved in an interesting way. Naturally it was expected that the space near the windows on each floor would be partitioned off for private offices. This would leave 75 feet of inner space that would present a ventilating problem just as important as the lighting problem. The doors of the private offices could be

INTERIOR VIEW OF OFFICES

expected to be closed most of the time and there were no windows or openings in the side walls.

The solution lay in running ducts under each floor and through the wall, terminating at the face of the street wall in louvres. At the intake on each floor was placed a heating coil so that warm fresh air from the street could be by-passed under the private offices and drawn into the interior of the building.

In the ceiling and in the corner diagonally opposite the intake there was located a vent to exhaust the stale air. In this way there was always a continuous supply of fresh air at the right temperature in the center of each floor as well as at the ends. The louvres covering the street end of the ducts may be seen in the photograph of the remodeled building at each floor level.

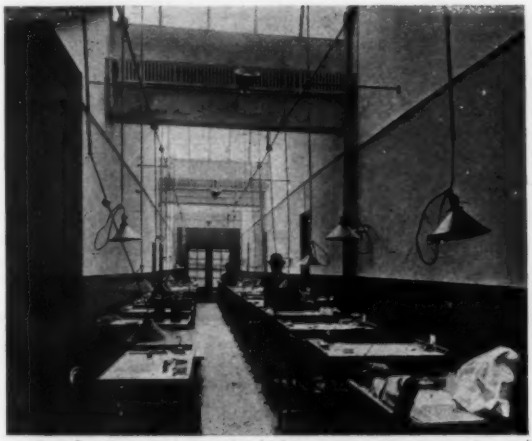
The picture of the top floor is a story in itself.

SAW-TOOTH ROOF WHICH REPLACED OLD SKYLIGHTS

This gave a north light over the entire floor

The floor was intended as a watch and jewelry assembling shop and the lighting requirements for watchmakers are of prime importance. This roof was entirely torn down and replaced by a modern saw-tooth roof, giving a north light in the interior. On dark days additional light is obtained by turning on the electric lights which are shown inclined upward. This light is reflected upon the floor by the reverse surface of the saw-tooth.

The walls are white to within 5 feet from the floor. From there down they are green for the comfort of the watchmakers' eyes. Individual drop cords are located at each bench for use on very dark days and when working on exceedingly fine work. The neat arrangement of condulets carrying the wire for these lights avoids the usual tangled and confused appearance of a lot of wires running haphazard in



INTERIOR TOP FLOOR SHOWING EXCELLENT LIGHTING

Note heating coils above

the air. Each condulet terminates sufficiently high above the bench to allow flexibility in moving the light about by means of the drop cord.

The lighting scheme on this floor in particular has been very successful and shows the results of careful thought and study of the needs of the men. After the remodeling of the building there was little difficulty in securing the best workmen. First-class men are apt to choose their working place with a view to their surroundings and working conditions. The new shop attracts high-grade men and the employer always has his pick of the best. He attributes this to the improved working conditions. A watch-

INTERIOR SECOND FLOOR

Note the effect of indirect light and white walls and ceiling

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THE MEZZANINE BALCONY ON THE MAIN FLOOR

THE MAIN ENTRANCE AND ELEVATOR AT THE RIGHT

maker's eyes are his stock in trade. When he injures them, there is not much left for him to do. The workmen realize this and value accordingly good conditions of lighting where they can carry on their trade. This makes selection of the best practicable.

The welfare of the employees is cared for by providing ample locker, toilet and washrooms, sufficient light, heat and ventilation, and safety from fire hazards. The owner felt very strongly that these facilities should be made ample and convenient.

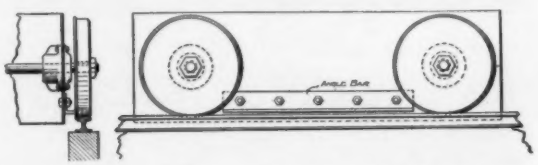
The operation of this building has practically demonstrated the many contemplated economies of operation which were discussed during its planning. Logical, clean-cut and efficient methods of planning have proved their merit. The building is interesting in its fitness for the purpose; effective protection and good conditions for those using it.

There are literally thousands of loft buildings in large cities where the top floor is the least desirable space in the building. In these cases the alteration of the roof along these lines to admit the north light, and plenty of it, would greatly increase the desirability and rental value. These floors would always be in demand for studios, drafting rooms, watchmakers' shops and all classes of trade where light of the right kind and intensity is of great importance.

This job in Maiden Lane was handled by the firm of Charles H. Higgins, architects and engineers, New York City. Every detail shows the careful thought of the trained specialist in making wrong things right, and adapting existing conditions to the special requirements of a particular job. It shows the value of the trained architect and engineer even on a small job like the alteration of a loft building.

Making the Crane Safe*

CRANES of the earlier types were constructed with overhung wheels, i. e., the wheels were entirely outside of the bridge frame, and no part of the bridge extended over the rails. The manufacture of cranes of this type has been discontinued for the most part, but some examples are still met with in practice. This method of construction has been responsible for a number of serious accidents because, if a shaft or axle breaks, the crane may fall to the ground. A break of this kind may be due to a flaw in the metal, or to "fatigue" of the material.



ANGLE BAR PREVENTS FALLING OF CRANE

The sketch shows a method which has proved satisfactory and practicable for providing against similar accidents with cranes of this type. Pieces of 4-in. angle-iron are bolted to the ends of the main frame at a distance of approximately one inch above the rails. These angles project out over the rails so that if the shaft breaks the crane will drop only the distance between the angles and the rails. In at least one known case a bridge wheel came off from a crane on which these braces had been installed, and the angles prevented the crane from falling.

*Extract from the Travelers Standard, January, 1921.

New Basis for Rating and Comparing Warm-Air Furnaces

Discussion of Recent Results in Warm-Air Furnace Research Work at the University of Illinois

By A. C. WILLARD*

ONE of the principal objects of the cooperative research program of the National Warm Air Heating and Ventilating Association has been the development of a method of rating and comparing two or more warm-air furnaces over a wide range of operating conditions. The research staff has given this matter much thought, in the attempt to get a comprehensive method of expressing the capacity, efficiency and other characteristics of a furnace over its complete range of operation. With positive and accurate means of measuring the amount of air handled and determining the correct rise in air temperature, it is now possible to study the performance of a warm-air furnace with definiteness.

Recent tests under the immediate supervision of Professor A. P. Kratz and Mr. V. S. Day of the Engineering Experiment Station of the University of Illinois show that it is entirely feasible to represent this data for any given furnace by a series of simple curves which tell the whole story of furnace operation almost at a glance. With this information before him, the engineer, heating contractor, or architect can not only compare warm-air furnaces of different types and makes, but he can also compare a given warm-air furnace with a steam-heating boiler or a hot-water heater.

INFORMATION NEVER OBTAINED BEFORE

Such information as this has long been desired, but has never before been obtainable. It represents, probably, the most important single result of the Warm-Air Furnace Research Investigation. It means that the warm-air furnace manufacturer will be able to publish as definite engineering data concerning his equipment as any maker of steam or hot-water heating boilers can possibly issue in these closely allied fields. In fact, very few makers of steam and hot-water heating equipment possess such complete data as is represented by these results. As a result of such tests as those shown here, the performance curves of a warm-air furnace can be drawn as definitely as the so-called "characteristic curves" of an electric motor, steam engine, steam turbine or pump.

Typical results in the shape of performance curves (Fig. 1) are given for one series of recent tests on a pipeless furnace. Since the final data from any portion of this research work is not released by the University of Illinois and the National Warm Air Heating and Ventilating Association until it is published as a Bulletin of the Engineering Experiment Station, the dimensions and description of the furnace have been withheld. Complete data will, however, be reported at the annual meeting of the association. It is sufficient to say the curves are based on actual tests of commercial apparatus, and are used in this discussion to illustrate a new method of testing, rating and comparing warm-air furnaces for the benefit and information of the furnace industry as a whole.

FACTORS DETERMINED BY TEST

The tests on which these curves are based were all run on the same pipeless furnace to determine the following factors, all of which are essential to the proper design and installation of a furnace (pipeless or piped).

(a) Rate of combustion (pounds of coal burned per sq. ft. of grate per hour).

(b) Efficiency of the furnace (ratio of heat put into air passing furnace to total heat value of coal burned, usually expressed as a percentage).

(c) Capacity of furnace in B.t.u. per hour. (British thermal units), which is the heat put into air passing furnace.

(d) Equivalent register temperature of air leaving register based upon a 65°F. inlet temperature. To get actual rise in temperature it is only necessary to subtract 65 from these temperature values.

(e) The draft at the smoke outlet of the furnace in inches of water, which indicates the great importance of providing a satisfactory chimney if the full capacity of the furnace is to be realized. It also shows that *capacity is entirely dependent on draft for a given furnace and a given coal.*

*Professor Heating and Ventilation and Head of Department of Mechanical Engineering, University of Illinois.

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In addition to the above factors, much additional data, such as CO_2 content and flue gas temperature, was determined, but as it is not introduced into this discussion it has been omitted from this list of factors.

An inspection of Fig. 1 will show that the performance of the furnace tested is completely shown for all combustion rates between 4.5 lb. and 10 lb. per sq. ft. of grate per hr. The combustion rates are indicated along the horizontal line at the bottom of the figure. Five tests were run at five different rates of combustion and the results from each test plotted against the corresponding combustion rate at the bottom of the chart. It was then found possible to draw smooth curves through these points and these curves have been numbered and labeled as:

1. Efficiency in per cent.
2. Heating capacity in B.t.u. per hr.
3. Equivalent outlet register temperature based on a 65° inlet temperature.
4. Draft in inches of water at smoke outlet.

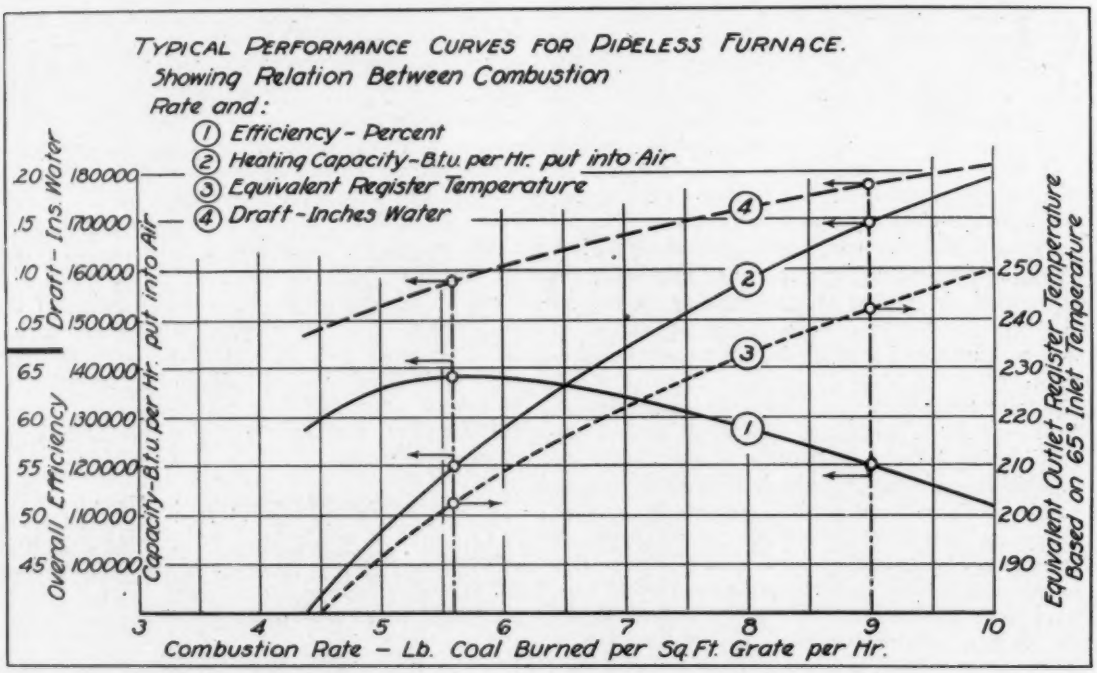
After the curves are drawn, it is a simple matter to ascertain under what conditions this furnace will develop its maximum efficiency. To do this, draw a vertical line (shown dot and dash in figure) through the highest point of the efficiency curve (1). This line will cut all the other curves, as well as the combustion rate axis at the bottom, and by reading to the right or left as indicated by the arrows, the following rating and performance data is obtained.

1. Efficiency = 64 per cent.
2. Heating capacity = 120,000 B.t.u. per hr.
3. Equivalent outlet register temperature = 202°F.
4. Draft in inches of water = 0.085.
5. Rate of combustion = 5.6 lb. per sq. ft. of grate per hr.

The heating capacity just found (120,000 B.t.u. per hr.) is not the maximum capacity of this furnace by any means, but it is the capacity at maximum efficiency. The heating capacity of this same furnace can be increased nearly 50 per cent. if the chimney draft can be approximately doubled. By increasing the draft to 0.18 inches it is possible to burn coal at the rate of 9 lb. per sq. ft. of grate and the rating and performance data becomes (see vertical dot and dash line at 9 lb.)!

1. Efficiency = 55 per cent.
2. Heating capacity = 169,000 B.t.u. per hr.
3. Equivalent outlet register temperature = 242°F.
4. Draft in inches of water = 0.18.
5. Rate of combustion = 9 lb. per sq. ft. of grate per hr.

The significance of this method of showing rating and performance data is of the greatest value in


TYPICAL PERFORMANCE CURVES FOR PIPELESS FURNACE.
Showing Relation Between Combustion Rate and:
(1) Efficiency - Percent
(2) Heating Capacity - B.t.u. per Hr. put into Air
(3) Equivalent Register Temperature
(4) Draft - Inches Water
Draft - Ins. Water
Capacity - B.t.u. per Hr. put into Air
Overall Efficiency
Equivalent Outlet Register Temperature Based on 65° Inlet Temperature
Combustion Rate - Lb. Coal Burned per Sq. Ft. Grate per Hr.

determining upon the selection of the proper furnace or in comparing two furnaces or a furnace and a boiler. Assume the heat loss from a certain house is 170,000 B.t.u. in the very coldest weather which lasts for only a few hours, and that the heat loss under average cold weather conditions which last for many hours is only about two-thirds of this or 113,000 B.t.u. It will be at once apparent that this furnace will handle the average cold weather load at very nearly its highest efficiency, which the efficiency curve showed to be 64 per cent. at about this same rating. This same furnace as shown by the rating and performance curves has a heating capacity of 169,000 B.t.u. when burning coal at a combustion rate of 9 lb. per sq. ft. of grate with a draft of 0.18 inches of water. It would also, therefore, readily handle the severest heating load during the winter, provided the chimney in this house could develop a draft of 0.18 inches of water.

This furnace would, of course, be operating in the latter case at an efficiency of only 55 per cent. with an outlet register temperature of 242°F. as shown by the curves at 9 pounds combustion rate. This reduced efficiency and high register temperature is not a serious matter, however, as the very severe conditions referred to only last a few hours.

Volume of Hot Air Increased

It should be noted that in the example just discussed not only has the register temperature increased from 202° to 242°F., but the weight and volume of air passing the furnace has also increased greatly. The curves can readily be made to show the amount of air handled, as well as the temperature of the air leaving outlet register.

If it is desired to compare this furnace with a steam heating boiler operating at the same combustion rate, it is only necessary to fix the combustion rate in order to make the comparison. Suppose boiler and furnace are to burn the same kind of coal at a nine pound rate of combustion and that the draft is satisfactory. Refer to the rating curves and take nine pounds on the horizontal axis as the index point. The heating capacity as already found is 169,000 B.t.u. per hr. which is equal to 169,000 ÷ 250 = 680 sq. ft. of steam radiation. (Each sq. ft. of standard steam radiation transmits 250 B.t.u. per hr.) Now a steam boiler large enough to supply 680 sq. ft. of radiation would need to have a rating of 25 per cent. more than this to allow for mains and branches, or 850 sq. ft. The pipeless furnace requires no allowances for piping connections and the capacity curve shows practically its true heating capacity over its entire range of operation.

Recent Developments in Spray Painting*

THE test samples of spray versus brush painting, conducted at the U. S. Naval Hospital in September, 1919, and described in the pamphlet entitled "A Study of the Practicability of Spray Painting," were inspected during December, 1920, after exposure for about fifteen months.

The exterior brick walls of the building had been painted with a light buff paint, one-half of the area being brush-coated and the other half spray-coated. The wearing properties of the paint applied by the two methods seem to be almost the same, both coatings being in fair condition. Medium chalking had developed and some unevenness of the yellow tint was shown in the form of light colored spots. The latter defect, however, is often characteristic of paints tinted with ochre. Close inspection of the two surfaces with a high-power magnifying glass indicated a rather characteristic spatter effect where the paint was applied by the spray gun, and ridgy brush lines where the paint was applied by brush.

Inspection of the large roof area painted with red oxide paint showed that the brush-coated and spray-coated paints were giving equal satisfaction from the standpoint of durability. Where the paint had been applied with spray guns by workmen not acquainted with the method of application excess quantities, which were piled up in some instances, had run together with the formation of a somewhat wrinkled film in spots. Such films, remaining rather soft, necessarily took up dust from the atmosphere and became slightly darker than the areas coated with thinner films.

Due to the fact that the spraying machine, especially in the hands of inexperienced operators, is apt to apply a larger quantity of paint over a given area than the hand-brush method the heavier films would, of course, show slower drying properties. With certain paints, therefore, which are ordinarily made with raw linseed oil and a minimum of drier and thinner, slow drying properties might be observed. In such instances the use of a substantial percentage of a rapid drying reducing oil of the varnish type would overcome this difficulty. A small percentage of a heavy bodied blown oil to cause "flowing out" and thus obliterate spray-pit marks might also be advocated. Manufacturers of special spray paints might take these points into consideration.

*Extract from a paper presented by Henry A. Gardner before the Pennsylvania State Association of Master Painters, Reading, Pa., January, 1921.

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Proper Size and Design for Flues

Space Requirements of Flues and Breechings. Obstructions Often Limit Good Design.

THE proper size for breeching and flue connections is not always given sufficient attention in the layout of a building, and the result is that frequently the contractor installing the flues finds it necessary to resort to all sorts of ingenious schemes to get his equipment in, and in many cases he has to make his flue smaller than good practice demands. This is not a matter of guess or convenience or anything of the sort. If the flue is too small it offers too much resistance to the gases which it is supposed to carry away. The result is that the gases "back up" into the furnace and an actual pressure is built up when there should be a vacuum. A pressure in the furnace forces the intense heat into every crack, and the result is that it does not take long to destroy the brickwork, boiler and furnace equipment and there is a high maintenance cost.

WHAT IS GOOD PRACTICE

It is good engineering practice to design flues so that there will be 35 square feet in the cross section for every *rated* boiler horsepower. It is important to note that the sectional area of the flue is based upon the builder's rating of the boiler and not upon the actual horsepower developed. For example, a 500-horsepower boiler should have at least 17.5 square feet in the cross-sectional area of its flue connection. If there are four such boilers, the area in the main breeching should be 70 square feet, while each individual connection would still contain 17.5 square feet.

These boilers may actually be designed to develop 200 per cent. or 300 per cent. of their rated capacity. In that case, to increase the flue area is going to help reduce the resistance and will tend to get the gases away faster. In such cases it is desirable to increase this area if space permits. In no case should the area be less than stated above, even though it is known that the boilers will be operated considerably under rating. If the architect bases his calculations accordingly, he is on the safe side.

SHAPES OF FLUES

A circular flue is the ideal flue because it presents the least surface area to the gases. Due to cost of construction and difficulty in making connections and alterations, however, the circular flue is not much used. Of all other shapes, the square flue approaches nearest to the circular flue in the matter of offering the least resistance to the flow of the gases. It is not always possible to use a square section, but the nearer the rectangle approaches to the square the more ideal it is.

In cases where more than one flue connects into the main breeching, it is good practice gradually to increase the area of the breeching in the manner shown in Fig. 1. The height h_1 is twice h and h_2 is three times h. If there are only three boilers the height remains constant from A to the stack. The width of the breeching should remain the same.

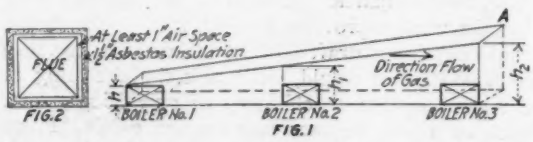

FIG. 2 FIG. 1

PROPORTIONS AND ALLOWANCE FOR FLUES

Another important matter is that in proceeding from the boiler to the stack no point of the breeching or flues should be at a lower elevation than any preceding point. There should be no downward flow of the gas. Sometimes it is difficult to get around obstructions in existing buildings without doing so. In new buildings this point should be borne in mind, as well as the fact that obstructions should not be so placed that it will be necessary to construct the flue area in one point or to flatten the flue in any marked degree or to change the sectional shape merely for the sake of getting around these obstacles. All these things only add to the resistance and either make necessary higher stack and induced draft equipment or result in furnace pressures.

ALLOWANCE SHOULD BE MADE FOR INSULATION

In figuring allowances for flues in cramped quarters it must be remembered that the flues themselves must be insulated after erection. It is customary to leave an air space of at least one inch between the steel of the flue and the insulating material. This is generally done by wrapping the flue with chicken wire or some such material to hold the asbestos and separating the wire from the flue by inserting distance pieces. The asbestos is then applied to an additional thickness of 1½ to 2 inches, depending upon the conditions. To the width of flue, therefore, there should be added 5 to 6 inches to determine the overall clearance width of the flue. The same applies to the depth.

Current News

Happenings and Comments in the Field of Architecture and the Allied Arts

High Bridge Has Been Saved

Through the untiring efforts of Mr. Arnold Brunner, representing the New York Chapter of the American Institute of Architects, and Col. Wm. J. Wilgus, representing New York engineers, High Bridge is not to be destroyed. As the result of their extended addresses before the Board of Estimate and Apportionment, it has been finally decided to preserve this structure and the alterations proposed will not mar its beauty. For the first time in that body, a vote of thanks was extended to the speakers for their work toward this end.

American Academy in Rome

The annual Fellowship in architecture, of the value of $1,000 a year for three years, is to be awarded by the American Academy in Rome, subject to the usual conditions. All persons desiring to compete for a Fellowship must fill in an application to be obtained from the secretary, Roscoe Guernsey, 101 Park avenue, New York. This application must be filed, with letters of reference and other information, not later than March 1.

The competition is open to unmarried men, citizens of the United States, who comply with the Regulations of the Academy. These and all necessary details may be learned from the secretary.

Chicago Architectural Exhibit

Announcement is made that the Thirty-fourth Annual Chicago Architectural Exhibition will be held at the Art Institute of Chicago, March 8th to April 5th. This year the exhibition is held in conjunction with the Applied Arts and National Farm and Garden Associations. It is given jointly, as previously, by the Chicago Architectural Club, the Illinois Society of Architects, the Illinois Chapter of the American Institute and the Art Institute of Chicago. The chairman of the exhibition committee is John A. Holabird, while Paul S. Esser is secretary and Hubert Burnham, treasurer.

New York Society of Architects

This Society held its usual monthly meeting at the United Engineering Societies Building, West 39th Street, on Tuesday, the 18th inst. There was a large attendance of members present, together with a number of visiting architects and engineers, attracted by an interesting and important lecture on "Recent Developments in Concrete," by Lt. Col. Boyden. The lecturer brought out instructive and startling facts as to the hitherto neglected importance of the proper proportion of water in mixing concrete. Thousands of experiments prove the fact that a small quantity of water in excess of the proper proportion will reduce the strength of concrete almost fifty per cent.

A discussion was had on the proposal before the Board of Standards and Appeals to amend the plumbing rules so as to permit the use of "standard" cast iron pipes, instead of extra heavy pipes. Unanimous disapproval was voiced by the meeting against the proposed change in the plumbing rules, and a resolution was passed to that effect.

Two new members were elected and two proposed for membership.

Announcement from N. C. A. R. Boards

Architects intere ted in reciprocal transfer can obtain information with reference thereto by addressing the National Council of Architectural Registration Boards, 3230 West Monroe Street, Chicago.

Nebraska Chapter Elects Officers

H. W. Meginnis, of Lincoln, was elected president of the Nebraska Chapter of the American Institute of Architects at the third annual meeting of that body in the University Club.

C. W. Steinbaugh, of Omaha, was elected vice-president, and J. D. Sandham, also of Omaha, was re-elected secretary and treasurer. G. B. Prinz was elected a new member of the executive committee.

Alan McDonald, retiring president, was toastmaster at the dinner at the University Club. Guests of honor were: Governor McKelvie, William L. Steel, of Sioux City; George W. Bates, Lincoln, city engineer; Charles Battelle, Omaha; V. Ray Gould, Omaha, contractor; Charles F. Harrison, Clark E. Mickey and Dr. J. E. Summers, all of Omaha.

The new registration law, now before the State Senate, which provides for the establishment of two boards of examiners, one for engineers and one for

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architects, was a main topic of discussion at the afternoon session. Architects generally favor the bill.

An exhibition of four typical small house plans was also a feature of the meeting. The exhibition was made with the idea of formulating a method which will permit good-looking houses to be built more economically.

Roosevelt Memorial to Surpass All Others

To erect the finest memorial erected in America is the aim of the Roosevelt Memorial Association. The Roosevelt memorial will be erected in Washington. Its form is being debated.

But as a work of art and architecture it is intended to make it surpass even the Washington monument and the Lincoln memorial, recent reports announce.

International Congress of Cities in Paris

Paris has been chosen, at a recent meeting of the Union Internationale des Villes, as the next meeting place, in 1922, of the International Congress of Cities. The last congress was held at Ghent in 1913, and proved very stimulating to municipal, official and civic reform organizations the world over. A special effort will be made to secure attendance of representatives from all national associations for civic betterment.

World's Fair in Philadelphia

A committee of 100 has been named to have charge of arrangements for and financing of the proposed exposition to be held in Philadelphia in 1926, to celebrate the one hundred and fiftieth anniversary of the signing of the Declaration of Independence.

Mayor Moore was named active chairman and John Wanamaker, who served on the centennial committee of 1876, honorary chairman. Alba B. Johnson, president of the Chamber of Commerce, is vice-chairman.

An inspiring and comprehensive plan by Dr. Paul P. Cret for the arrangement of a site has been submitted to about 400 representative citizens and received with enthusiasm.

The plan was presented and explained at the forty-ninth annual meeting of the Fairmount Park Art Association by Andrew Wright Crawford, secretary of the art jury.

Dr. Cret, noted French architect, who is professor of design in the school of architecture of the University of Pennsylvania and who has been prominently identified with city improvement activities several years, proposes that the Parkway and both the east and west banks of the Schuylkill be utilized as grounds for the international exhibition.

Mr. Crawford, who outlined the plan in an address on "World's Fairs and Their City Planning Salvage," said Dr. Cret's suggestion to use the Schuylkill embankments, beautified and connected by ornamental bridges, was "astonishing because it could be carried out so easily."

Details of the project will appear in a future issue of THE AMERICAN ARCHITECT as they are developed.

Co-operative Housing and Garden City League Formed

Under the name of the Co-operative Housing and Garden City League of America, a new society has been formed, with the landscape architect Robert Anderson Pope as chairman, to promote co-operative housing and to create for this purpose a loan fund to be applied to the investigation of the advisability of acquiring basic sources of essential building materials, their means of production and distribution, and if more capital becomes available, to the construction of model housing estates.

Jersey City Planning

Jersey City has completed within the last few weeks an organization to plan for the future development of the city. The mayor has appointed a commission of five to which the Chamber of Commerce has added four of its members. They will co-operate with a number of city officials appointed for this purpose on a joint City Development Plan Commission. The program embraces development of through streets and highways, civic centers, parks, playgrounds, tunnel routes, a housing system and a high speed motor vehicle belt road. The City Commission, by resolution, endorsed the plan and appropriated the money needed for investigations and other preparatory work by the city engineers.

Jersey City Building Active

Houses for two hundred families will be built by a corporation authorized a few weeks ago by the Jersey City Chamber of Commerce and financed by business men of that city. The new houses will be of the so-called Philadelphia plan of five-room double-houses, with two families to each side. It is expected that costs will be reduced 25 per cent by the simultaneous construction of fifty such two-family houses. Each two-family house when completed will be sold separately at about $10,000, with a first payment of $2,500 and monthly installments of $98, including taxes, water rent and insurance.

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The first mortgage of $7,000 will be placed by the corporation. As the estimated shortage of homes in Jersey City is over 1,400, this project is not expected to discourage private construction.

Inter-State Bridge

One of the greatest projects of its kind in New England, according to the Portland *Express*, is about to be started. This is the magnificent Maine and New Hampshire Memorial bridge to be erected over the Piscataqua river between Portsmouth, N. H., and Kittery, Me. Estimated to cost over two million dollars, it will completely outshadow the famous local Portland Bridge, which reached the million mark but which could not be duplicated today for a very much larger sum.

While the cost of the new structure is to be divided equally among the two States and the Federal Government, the major portion of the benefit to be derived from it is to be received by Maine. The great local advantage, however, is to go to Portsmouth. The bridge is to form a remarkable gateway into the Pine Tree State, through which will pour at least 75 per cent. of the automobile tourist traffic.

The great local benefit received by Portsmouth will be the fact that it will form a free means of access for the towns of Maine, in its vicinity, into the New Hampshire metropolis to trade.

Balsa Wood Lighter Than Cork, Durable as Cedar

Balsa wood, growing notably in Costa Rica and Ecuador, is the lightest wood known, weighing only 7.3 pounds to the cubic foot. Cork weighs 13.7 pounds. Growing more rapidly than almost any other known tree, it is said that within four years a balsa tree will attain the height of 30 feet, with a diameter of ten inches. It is as durable as cedar.

The wood is white, extremely straight grained and easy to work. It is soft when green, but seems to harden later. It is used extensively for making life rafts and life preservers, anl it is thought that it will eventually constitute a valuable source of pulp wood. A brown-colored cotton-wool, commonly used for stuffing pillows and mattresses, is also produced.

It is believed that the tree would flourish in Florida and because of its rapid growth would spread easily over the southern part of the state.

Billboard Nuisance in Massachusetts

At a cost of millions, says the Boston *Globe*, Massachusetts, has built a system of magnificent park boulevards and highways from the Atlantic Coast to the Mohawk Trail. "No sooner do these roads bring the splendors of our landscape within reach of the eye (and we are no worse sinners in this respect than our sister states) than we allow them to be defiled at every turn by glaring atrocities which urge us to invest in this brand of tooth paste and that brand of chewing gum." The Women's Municipal League of the City of New York, which quotes this and other evidence of the continued existence of the billboard evil, is endeavoring to check the abuse.

Niagara Power

From Niagara River only 26 per cent of the total flow is diverted for generating electricity, and engineers say that 60 per cent could be diverted without marring the scenic beauty of the falls, hence it is asserted that "millions of horsepower are going to waste." A treaty with Great Britain limits the amount of power that can be developed at present.

Puppets in Egyptian Tomb Show Ancient Conditions

Innumerable puppets, representing the household retainers of Mehenkwetre, a great Egyptian dignitary of 2000 B. C., taken from a concealed chamber of his tomb and illustrating in detail the life of the people of that time, have just been put on exhibition at the Metropolitan Museum of Art. They were excavated by the Museum's Egyptian expedition at Thebes and are considered one of the most important of recent discoveries.

The puppets, who are shown performing different household arts and duties in the fields and on the water, are funerary models and form the most complete set ever excavated.

Mehenkwetre was a chancellor and steward of the royal palace in the reign of King Mentuhotep III., and his tomb was located in the choicest spot in the necropolis of his day, overlooking the mortuary temple of the sovereign.

The tomb had been plundered several hundred years after the interment of the dignitary whose body it contained, but neither those early nor later visitors discovered the hidden chamber which the museum excavators found intact. To facilitate the carrying on in another world of the pleasures which the great man had enjoyed on earth practically every occupation which ministered to his comfort had been reproduced with these miniature servitors, that he might enjoy them in the new life he was entering.

The puppets seem to be inhabitants of a doll world, but they actually reproduce the life of the early Egyptians and, from the fullness of the details, they throw light upon many interesting points not previously understood.

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Circulating of Pictures

Circulation of pictures, on a plan similar to that followed in the circulation of books by public libraries, has for some time been carried on to a small extent in Boston, New York, and possibly other cities. The Brooklyn Y. W. C. A. has recently started such a circulating library for reproductions of the best pictures, which are lent for two weeks or a month. Each picture is accompanied by a brief account of the artist's life, data about the school and period of art and the significance of the particular work. The next step, apparently not contemplated in this case, but adopted elsewhere, is that of enabling borrowers to buy at a modest price pictures which especially appeal to them.

U. S. Is Wearing Away

An average of 95 tons of soil, pebbles, and loose rock is carried by the rivers into the ocean every year from every square mile of the United States, according to the United States Geological Survey, Department of the Interior. The immensity of this contribution may be better comprehended when it is realized that the surface of the United States covers 3,088,500 square miles.

Old Paris City Walls to Be Used for War Area Homes

The inner walls of Paris, relics of the city's defenses in the old baronial days, are going to make buildings in war devastated areas of France. Where they stood, Paris will have its first model playground, in the Pagnolet quarter, laid out on American lines by the Junior Red Cross. Announcement by the Red Cross said twenty miles of good building stone had been saved from leveling the old fifty-foot defenses bordering the Paris moat.

Conspicuous Automatic Doorsill Permits Exit Only

To enforce the one-way traffic rule through the establishment, the management of a large garage has installed an automatic doorsill across the exit. The device is made of heavy steel and is hinged and counterweighted in such a way that, normally, the edge toward the street is held several inches above the drive level. This presents an obstruction which cannot fail to challenge the attention of an approaching driver. To a car advancing from the street side, the obstruction is very real. Immediately the wheels of an outgoing car bear upon the sill, the apparently formidable bump becomes a smooth, level path, the heavy threshold sinking into a recess in the driveway. A conspicuous decorative scheme and the admonitions to use the entrance and also to cross the sill in low gear have the desired effects of preventing movement against the direction of traffic and of making cars leave the building at a safe rate of speed.

Borglum to Carve Army on Mountain

Gutzon Borglum has taken up again his plans for carving a vast memorial to the Confederacy on the face of Stone Mountain, a great granite monolith just outside Atlanta, according to a recent announcement.

Nothing so stupendous as the Stone Mountain undertaking has ever been planned in art. Stone Mountain is a solid block of granite, the northern side of which is a sheer cliff nearly 1,000 feet high and 1,500 feet wide. That perpendicular surface, is was explained, is without seams and even enough to offer a vast natural canvas for the sculptor's chisel.

The memorial will take the form of a big army, composed of more than one thousand figures of southern leaders, marching across the face of this cliff. Mr. Borglum, it was stated, will cut the figures in heroic proportions, forty or fifty feet in height, so that they can be recognized for four or five miles. The principal figures will stand out in complete relief, while other figures will be scaled down through various stages of relief to mere chisel sketches on the surface of the stone, thus giving the appearance of an army fading into the heart of the mountain.

Mr. Borglum plans to retain a large number of artists under his supervision. The artists will work upon the face of the cliff from steel cages swung on cables down the side of the mountain.

Mr. Borglum estimates that it will take about eight years to finish the work, at a cost of several million dollars.

Personal

Mr. Gerald Joseph O'Reilly, Room 11, Hippodrome Bldg., Miami Florida, is desirous of receiving manufacturers catalogs, specifications and price lists to complete his files.

Damon, O'Meara & Hills, Architects are now operating offices in Suite 1123-1124 Merchants National Bank Building, Saint Paul, Minn., and at 19 East Mason Building, Fort Dodge, Iowa. The Saint Paul office would like to receive literature.

T. Beverly Keim, Jr., architect, has moved from room 202 to room 716 Haas Bldg., Los Angeles, Cal.

A. E. Sedgwick and N. W. Alpaugh, architects, have moved their offices to Suite 506, Garland Bldg., Los Angeles, Cal.

Weekly Review of the Construction Field

With Reports of Special Correspondents in Regional Centers

A STUDY OF PRICES*

By

EDMUND D. FISHER
(Vice President, Bank of Detroit)

PART III

[Refer to page 107, issue of January 26.]

An old English document states that in 1314 "Complaints to the King that the market of Oxford ran unreasonably high, so that poor scholars could hardly live, so the King sent down his Mandate to regulate this affair." An attempt was then made to establish the following price schedule, which is interesting in view of present costs:

	l.	s.	d.
A stalled, or corn-fed ox	01	04	00
A grass-fed ox	00	16	00
A fat stalled cow	00	12	00
An ordinary cow	00	10	00
A fat mutton, unshorn	00	01	08
A fat mutton, shorn	00	01	02
A fat hog, of two years old	00	03	04
A fat goose, in the city, 3d, but everywhere else	00	00	02½
A fat capon, in the city, 2½d, elsewhere	00	00	02
A fat hen, in the city, 1½d, elsewhere	00	00	01
2 chickens, in the city, 1½d, elsewhere	00	00	01
4 pigeons (in the city but 3 pigeons)	00	00	01
24 eggs	00	00	01

This comment is made in the article in question: "Things could not be purchased at these rates, for people would not bring them to the market (and that is a thing that Parliaments cannot remedy), and so the King was fain to revoke the former act, and leave the people to sell as they could (for a trade will do as it can, and never be forced, one way or the other)."

READJUSTMENT should contemplate a reasonable profit, and prices should bear a proper relation within the season to the preceding season's or preceding year's price schedules. An economic commission might very happily analyze the entire subject, and, for what it is worth, publish what would seem to be a proportionate basis of prices from year to year within the economic period involved. In correlation with this, the government should develop a comprehensive plan of taxation fairly distributed and provide for a stated reduction of the national debt over a sufficiently long period of years. This would at least serve as a guide to the business world, and tend to prevent the business difficulties which are sometimes developed by the discussion or operation of unsound legislation.

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It is comforting to realize that a period of deflation, based upon average experience, is a period of growing wealth. Take a characteristic period of deflation in England experienced from 1874 to 1896 (a gold movement). During this period the average of wholesale commodity prices fell 40 per cent. It was a period of increase in production the world over, and of growing wealth, in which England, of course, shared. It was a period of gradual increase in wages, although the greatest benefit to the wage earner came from the reduction in prices. An English economist states: "Looking at this period as a whole, there seems to be no evidence that employment was any less regular than in preceding periods."

A composite judgment based upon the thought of authoritative writers and speakers on the subject of "What is necessary to bring about the orderly decline in prices," may be stated as follows:

1. That bank credit for legitimate business be not unduly restricted.
2. That the public writings and speeches of influential men be directed toward the upbuilding of business morale by spreading the gospel of confidence in our own economic strength, which must be supported, however, by normal production.
3. That the maintenance of a fair volume of export trade will tend to stabilize prices, and through the helpfulness it will give to the upbuilding of stricken nations, will react favorably on the United States.
4. That as much stress as possible be laid on the argument that a small profit on a normal production is better than a large profit on a curtailed output.
5. That manufacturers and merchants in a strong financial position should place reasonable orders to encourage trade during depressed periods.
6. That a consistent advertising policy is necessary to stimulate the buying public.
7. That at the present time a revision of our tax laws is necessary to normalize business and investment relations.

After all, and in conclusion, an orderly decline in prices is largely dependent upon the attitude of the credit men and the credit grantors of the country. An analysis of credit statements during the period of deflation will undoubtedly many times show a status of depreciated inventories and limited liquid assets. Forced liquidation, however, would tend to a disorderly decline and abnormally low prices. While a consistent reduction in prices is desirable, it is quite undesirable to have a greater reduction than is logical for a proper relation to the basic economic conditions. For stability, we must have full employment, continuity of spend-

ing power, and reasonable prices. The credit man, therefore, must, when possible, permit the element of time and the principle of helpfulness to cure some of the business difficulties brought to his attention.

A knowledge of the principles of prices is most important in credit granting, as the movements of prices, as has been pointed out, directly affect credit conditions. The inventory is usually the most important factor in the commercial statement, and a radical change in value may mean much added wealth or ultimate insolvency. A most important factor to remember in a period of deflation is that while the value of the inventory may shrink and the surplus be reduced, the cause which brings this about—the decline in prices—is also increasing the value of each individual dollar. What is apparently a reduced surplus may and probably will indicate a greater wealth than the swollen surplus that previously floated on the froth of the tossing waves of inflation.

(THE END)

(Any architect desiring this address in full, printed attractively in booklet form, may obtain it by writing the editor of this journal.)

Next Week: "The Architect's Relation to Price Declines"

(*Special Correspondence to* THE AMERICAN ARCHITECT)

SEATTLE.—There was some slight unsettlement of the steel market during the week on the impression of jobbers that the steel corporation prices, especially in sheets, may show further declines. What these reductions will be if any will depend on how badly the outside mills need tonnage. This situation is just the reverse of what it was during the last two quarters of 1920. It would appear from the way jobbers feel that the independent mills are masters of the situation.

Jobbers report ample warehouse stocks of roofing, sheets, cement, plaster and plaster wall board. The situation seems to radiate around March, which it is thought will more clearly disclose the construction tendency of the Pacific Coast territory than any other month. There is a growing belief among both the metal and lumber interests that construction will start around the first week in March. It is thought that by that time builders will have concluded that materials are at their bedrock levels and that to wait longer would be to endanger the possibilities of prompt delivery.

It is the feeling of jobbers that basic costs must be hurried forward if the building year is to be propitious and business is to settle to the point where building-up can begin. Jobbers in pipe, sheet metal, plumbing supplies and metal furnishings insist that as fast as their costs are dropped they pass the advantage on to the trade, but that the trade is not responding in kind. Unless some speed is shown in giving investors this advantage as it occurs it is predicted that retailers will suffer in finance. Small losses can be taken now more readily than large ones in March or April, and few communications pass that do not contain some reminder to retailers to speed up recessions in order that building projects may be pushed beyond the pencil sketch stage.

Doyle & Merriam, architects and engineers of Seattle, have opened bids for demolishing the Boston block, four stories in height, to make space for the new exclusive banking quarters of the Seattle National Bank. Work is to begin March 1. This is the first of three exclusive banking structures to be erected in the permanent financial district on Second avenue south of Spring street within the next two years. The Union National will involve an outlay of $1,000,000.

Approximately 46 per cent. of the fir lumber mills in what is known as the West Coast Forest products territory have resumed operations since the holidays. Log and labor overhead have decreased 15 to 25 per cent., and logging contractors seem to have run afoul of each other as to what constitutes the actual market. The result is beneficial to the mills that have no timber of their own but must buy on the open log market from time to time according to their needs.

Eastern building is quiet, according to lumber orders received from east of the Missouri river. Retail yards, who represent the wishes of builders in their respective communities are inclined to believe there will be further price recession. This position may be well taken, but the mills expect a rush of orders with early spring and buyers will be taking their own chances in delay. It is not believed that prices could fall any appreciable extent, as the mills will not sell on the market as it stands today.

(*Special Correspondence to* THE AMERICAN ARCHITECT)

CHICAGO.—Chicago's building boom which loomed so brightly on the immediate horizon a few weeks ago is beginning to assume some of the characteristics of a desert mirage and is growing less tangible as it is more closely approached. With mild February weather giving hint of early spring conditions, when building might be starting somewhat ahead of the usual frost-out-of-the-ground period, there is a tendency on the part of those connected with the building industry to complain at the apparent lack of building activity.

Architects say that there is comparatively little work on the boards just now, although there is considerable inquiry and a great deal of tentative figuring. Contractors report the same state of

public mind and even the lumber and materials men indicate that spring business has thus far failed to transcend the inquiry stage.

The reason back of it all is manifold, but mainly it is due to the state of uncertainty and expectancy which a falling market has built up in the public mind. With the daily newspapers giving prominence to every downward slant, a mass psychology has been created, which expects a much deeper plunge of the toboggan back toward economic readjustment. This watchful waiting is manifested by the disposition on the part of those whose minds are made up to building activity, to wait and see just what the situation will really come to in the end.

Another complex in the situation is the failure of finance to come to the rescue except at high rates and unusual commissions.

Just what the outcome of all this is to be is a problem that is puzzling a great many people in the Chicago building industries, architects, contractors, materials and lumber manufacturers and all the rest.

Optimistic leaders believe that the situation can very well turn from bearish to bullish in the span of a week or so and that hectic activity can very easily relieve the present dullness almost overnight. The fact that the building shortage is so acute and the pay-me spirit of the average flat-owning landlord so apparent is looked upon as a goad that cannot fail to encourage building, particularly in residential and apartment buildings, once the complicated conditions now prevalent are even slightly cleared up.

Once building is fairly started it is felt by many that there will be a rush that will be reminiscent of boom days of the past. It is the initial impetus, however, that is now lacking.

As far as Chicago is concerned there are signs here and there that the tie-up is beginning to crumble.

One of the signs of better times ahead is a recent building permit for a million dollar apartment building. This is to be a nine-story structure to be erected in the Rogers Park district by G. M. Posner, of G. M. Posner & Co., builders. Work is to be started on the building at once.

There were twelve other permits for apartment buildings in the January list, a significant fact inasmuch as apartment buildings have been conspicuously absent from the building permit lists during recent months.

Although apartment permits show an increase for January, the general building situation is not improved, according to the building permit report. At a date well toward the close of January only 60 permits had been issued as compared with 171 in December of 1920 and 328 as compared with January of last year.

The growing number of apartment permits is viewed with satisfaction by Charles E. Bostrom, building commissioner, who in his recent annual report pointed out that Chicago needs from 75,000 to 90,000 more apartments.

In his report were figures covering building in Chicago for a period of seven years, which is interesting enough, perhaps, to be reproduced. The report follows:

Year	Building Permits.	Valuation
1913	10,792	$89,668,427
1914	9,938	83,261,710
1915	10,340	97,291,150
1916	10,277	112,835,150
1917	4,938	64,244,150
1918	2,529	34,792,200
1919	6,589	104,198,850
1920	3,745	79,102,650

Lack of money for building is getting more and more to be the focus of the building apathy in Chicago and public attention is being more centrally directed to the solution of this stringency. The past week has seen some three or four possible plans for the relief of the condition.

One interesting plan has been evolved by the Corn Exchange National Bank, which hopes to encourage definite savings toward home building. Briefly, the bank's plan is this:

The man who desires to own a home contracts with himself to deposit with the bank a certain sum each month toward a first payment. At the very beginning of the savings and throughout the period of home-owning thrift, the bank supplies advice and information on building, plans, real estate and other things that the prospective home-owner ought to know. By the time the depositor is ready to buy or build he is well posted on the details of the transaction.

What is of more interest than the plan itself, is the fact that three thousand inquiries and three hundred new accounts were developed by the plan within a week.

The Building Trades Council which is made up of thirty-eight unions in the building industry is fostering a plan to raise a bond fund of $5,000,000 to spur building. This fund is being predicated upon a bond issue on an important business sky-scraper which has lately been taken over by an important co-operative investment society. Funds from this plan are not yet available, but hope is held out that something may be forthcoming from this source.

Still another plan which is not lacking for proponents is a scheme to secure special legislation

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which will permit the state to issue building bonds at a low interest rate, untaxable and to be sold without commission as a means of financing home building and home owning.

Out of all this planning, something is expected to evolve and those in closest touch with the building situation are hopeful that advancing weeks may change the whole face of the situation which admittedly does not seem as bright now as it did two or three months ago.

The demand for lumber and building materials continues to be without spirit or feature and prices which have prevailed for some time are continuing unchanged, because the price really plays very little part in the lumber and materials business just now.

The prices are about as follows:

Yellow Pine: B. & B. 1-in., $95 to $130, depending on thickness; 2 x 4, No. 1, 10 to 16 ft. length, $51 to $53; 2 x 6, $48; 2 x 8, $50; 2 x 10, $53; 2 x 12, $55; 13-16 x 3¼ z & b flat flooring, $85 to $90; 1 x 6, No. 2 common, $48 to $90. *Douglas Fir:* 2 4 S, in sizes up to 12 x 12, in length up to 32 ft., $65 to $70; 14 x 14, $68 to $73; 16 x 16, $72 to $75; 18 x 18, $75 to $80. *Hard Maple:* Four, ¼ No. 1 and 2, $135; select, $120; No. 1 common, $100; No. 2 common, $65; No. 3 common, $32. *Birch:* Four ¼ No. 1 and 2, $160; select, $133 to $138; No. 1 common, $95 to $100; No. 2 common, $60 to $65; No. 3 common, $40. *Red Gum:* Four ¼ No. 1 and 2, $150; No. 1 common, $90 to $92; No. 2 common, $45.

Face Brick — Standard, vitrified red, $32@34.00; Smooth, Indiana red, $38.00@40; Smooth Ohio red, $38.00@40.00; Smooth, Pennsylvania red, $46.00@48.00; Smooth, buff, $45.00@47.00; Smooth, gray, $47@49.00; Rough, buff, $44.00@46.00; Rough, gray, $47.00@49.00; Variegated, rough texture, $34.00@49.00.

Common brick, $16.00 per M. Portland cement, $3.00 per bbl. Torpedo—Lake and bank sand, $3.50 per yd. Crushed stone, gravel screenings, $3.50 per yd. Hydrated lime, Ohio, paper, $22.00 per ton. Hydrated lime, Ohio, cloth, $29.00 per ton. (Includes sacks at 30c. each.) Hydrated lime, Wis. paper, $20.00 per ton. Bulk lime, $1.75 per ton.

(*Special Correspondence to* THE AMERICAN ARCHITECT)

BOSTON—The outstanding feature here this week was the opening of all the textile mills, large and small, in New England. After several months during which mills were either completely closed or running but one or two days a week, at the present time all are open, with some operating on a full time basis and others on four or five days a week schedule, with indications that full time may soon be resumed.

This is important to architects in that the industrial situation as a whole in New England (and therefore any component part of that situation) depends almost wholly on the textile business. Once the general industrial situation is cleared up, there will be a marked improvement in the building industry. A most significant fact is that, almost without exception, the mills are renewing with wage cuts of 22½ per cent. in effect, the American Woolen Company being the last large concern to announce the reduction. In practically every case, the workers returned to their looms without marked protest. This is most certainly an encouraging factor.

Leading textile mill owners are on record as declaring that more goods have been sold in the last three or four weeks than during the entire six months preceding. There is every confidence that the revival is not a flurry, but a healthy renewal of life in the textile industry.

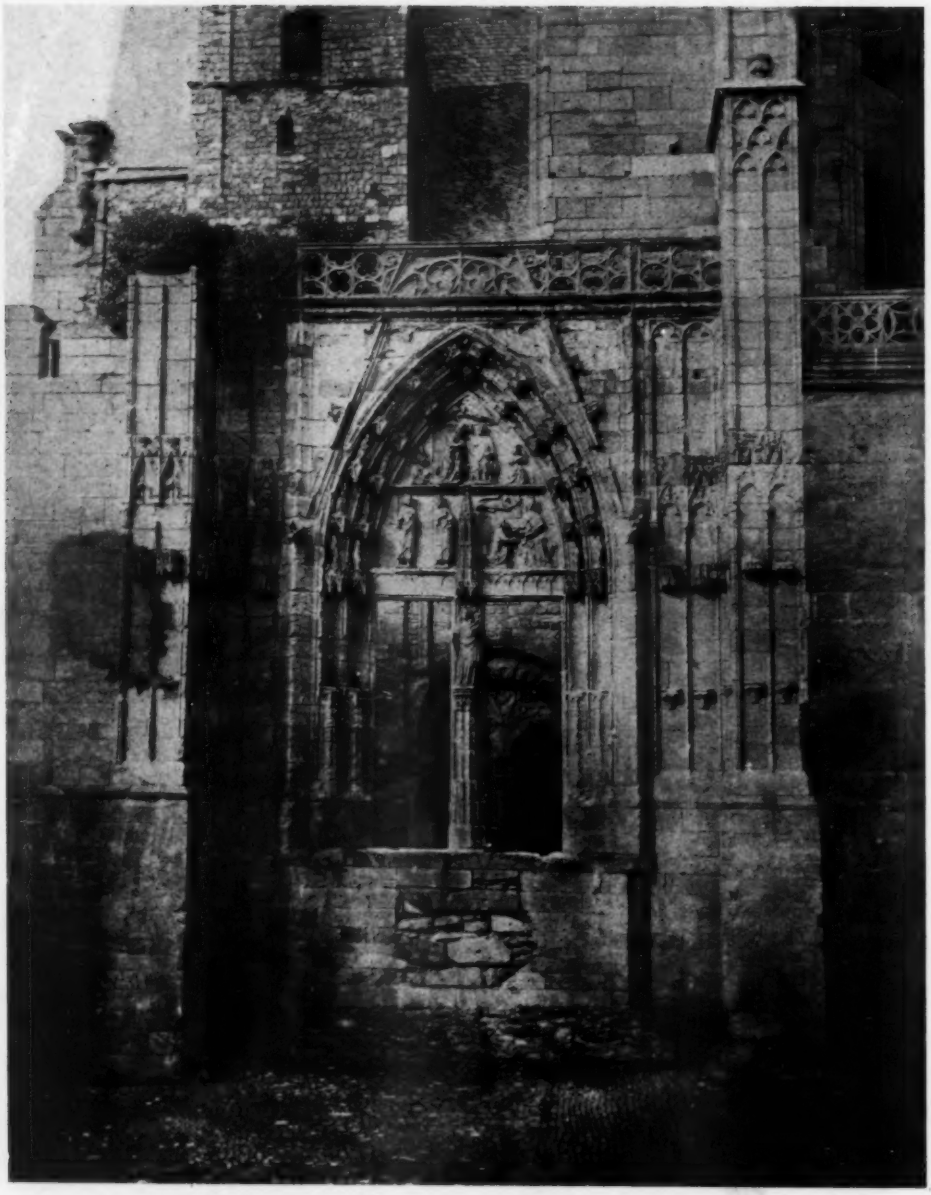
More than 80 per cent, of the workers are back in Fall River and from 70 to 80 per cent. are again at work in other important textile centers in this section, including the more important centers of New Hampshire and Rhode Island, also in Maine. About 50 per cent. are reported as working in Lowell, Lawrence and New Bedford.

Andrew Adie, president of the United States Worsted Company, declares the industry is now on the "front edge" of a healthy revival.

All reports agree that there is little merchandise in the mills' warehouses and that practically all new business must be met by a resumption of mill operations.

Architects here find these symptoms most encouraging. The uncertainty of the textile situation has been a decided drawback to any comprehensive or even partial building program. Owners were not willing to put money into any new project where the inhabitants of the communities were either out of work or in a state of uncertainty concerning their next day's meals. The importance of the textile industry here is comparable somewhat to New York's commerce. Imagine New York's harbor bottled up for weeks and you have a fair idea of what the situation has been here for some time.

Your correspondent finds that a number of architects are looking forward to such a distinctly bettered industrial situation that a number of building projects will now very probably go forward without further delay. Architects generally in the New England region are looking forward to a distinct improvement in the building industry, as a result of the improved textile situation. It is even possible that the workers in the building industry may agree to certain wage cuts in order to speed the revival of building, precisely as the textile operators have accepted their wage cuts in the same spirit.



GOTHIC WINDOW—THE CATHEDRAL, WETZLER, GERMANY